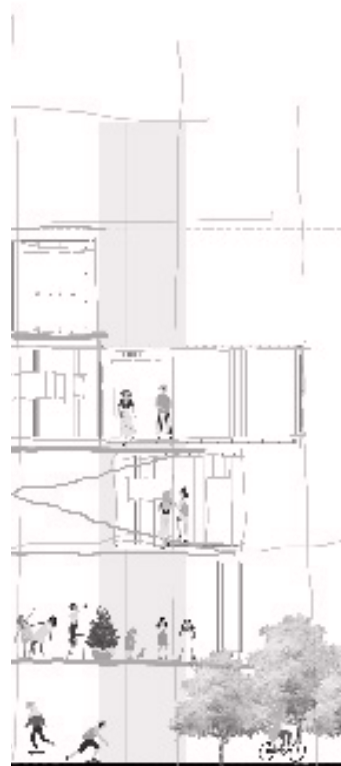


# INTERCONNECTED MARKET

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A mixed use public market space in Hatfield, Pretoria





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Interconnected market collage

This project addresses the critical interplay between Architecture and Transportation in the context of Pretoria's rapidly growing student city, Hatfield. Recognizing the unsustainability of the current car-reliant system and the division exacerbated by existing barriers, this study proposes a holistic approach to urban development. The research uncovers Hatfield's heavy reliance on motor vehicles, limiting active transportation modes and hindering pedestrian safety.

The Hatfield framework acknowledges both the area's isolation and its untapped potential. By repurposing underused spaces along the railway, the project aims to restore connectivity between North and South, with a focus on accessibility, structured development, and social inclusivity. The design embodies a commitment to economic and social circularity, creating vibrant public spaces that serve the entire community.

Central to the project's strategy is the use of shipping containers, known for their environmental friendliness, efficiency, and durability. The incorporation of containers not only aligns with sustainability goals but also offers flexibility in future expansion. The concept revolves around a dynamic building design that seamlessly interacts with its surroundings, fostering inclusivity and accessibility at every level.

By populating 30% of the grid initially, with the potential to expand to 50% over time, the project allows for permeable spaces between containers, nurturing diverse outdoor interactions. The inclusivity ethos extends to the integration of various platforms and levels, ensuring open access and fluid merging of different programs.

Ultimately, this project aims to blur the lines between formal and informal spaces, creating a dynamic urban habitat that serves as a beacon of inclusivity within Hatfield. It embodies a vision of a vibrant, interconnected community hub that not only addresses current challenges but also adapts to the evolving needs of the future.





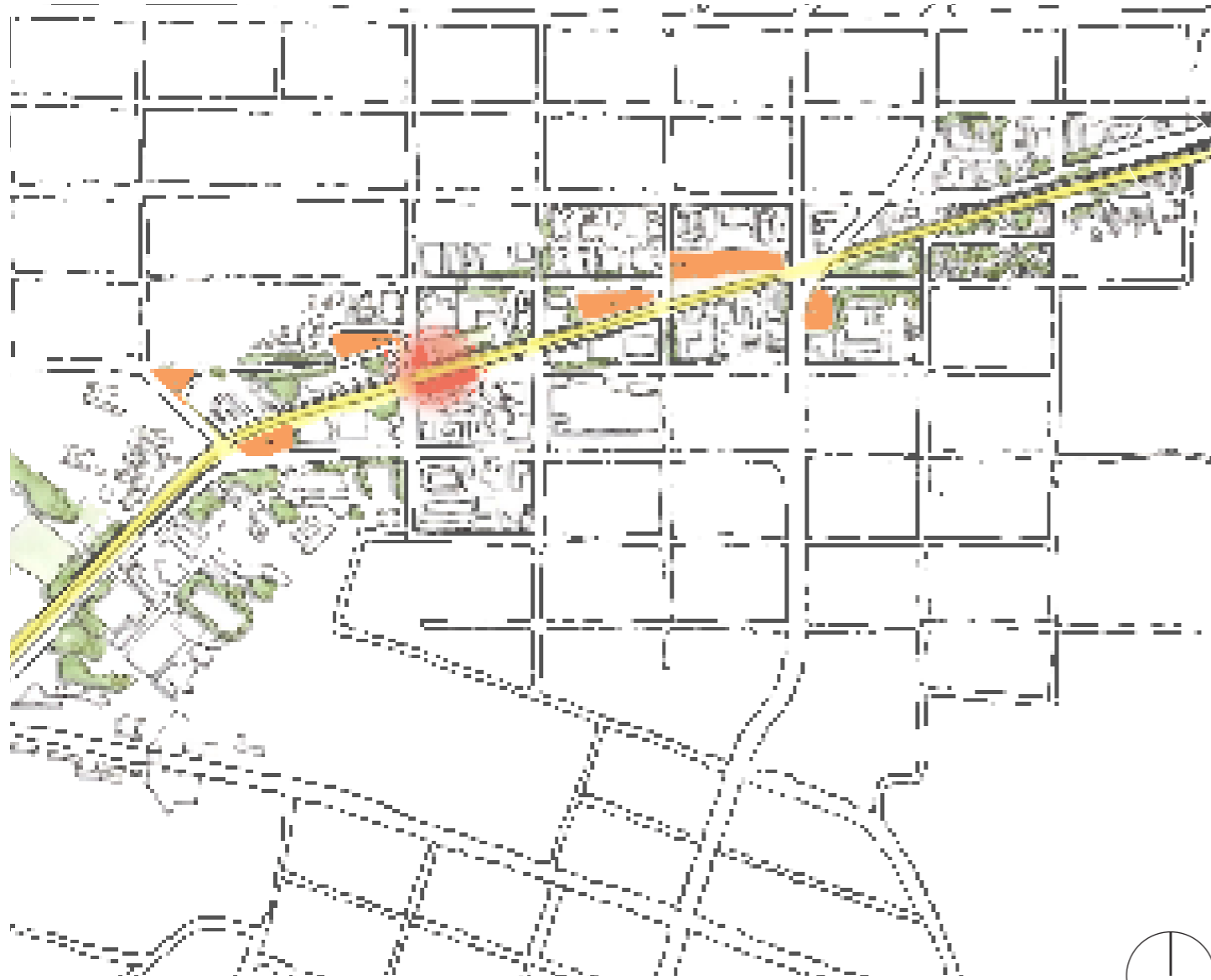
Site

Showing broken connection because of the railway. Festival Edge residential building is visible to the North and Virgin Active parking lot is visible to the South



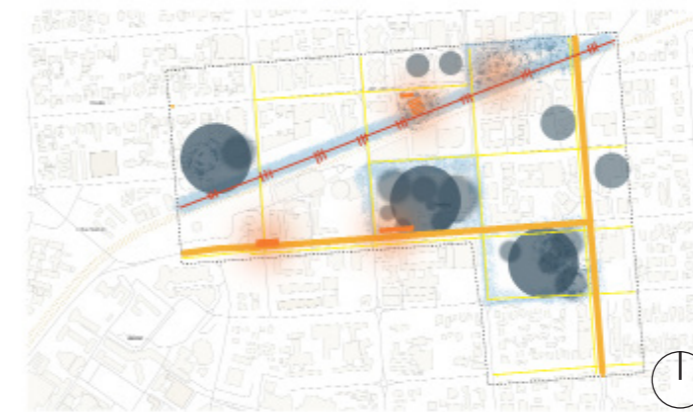
Current movement and Nodes

Current nodes and movement around chosen site. Showing strong East-West movement patterns of active commuters. The Yellow block indicates the chosen site and the Orange line indicates the railway, creating division in Hatfield.

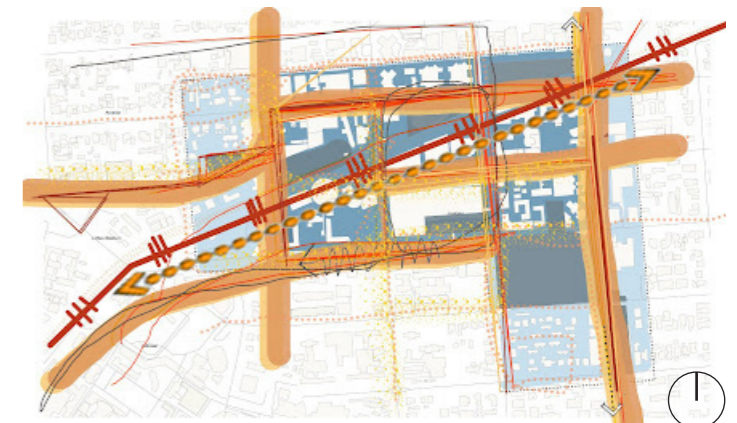


Urban vision- String of pearls

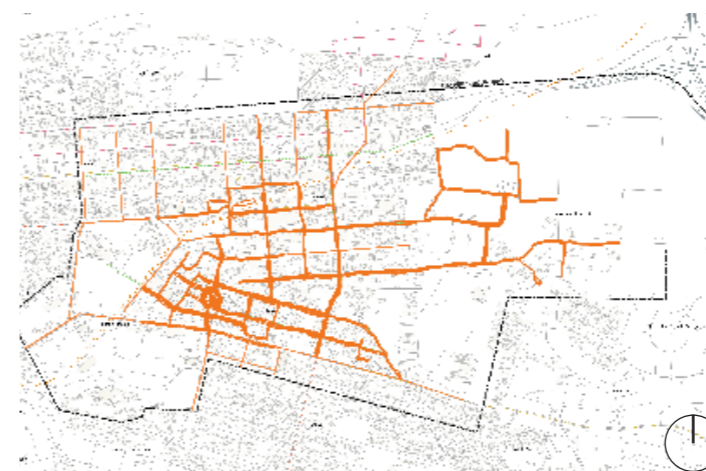
This Urban vision is a series of six nodal public interventions, similar to a string of pearls. These programmes are all connected through a linear park along the Gautrain rail. This project focus on the interconnected market. Indicated with the red dot



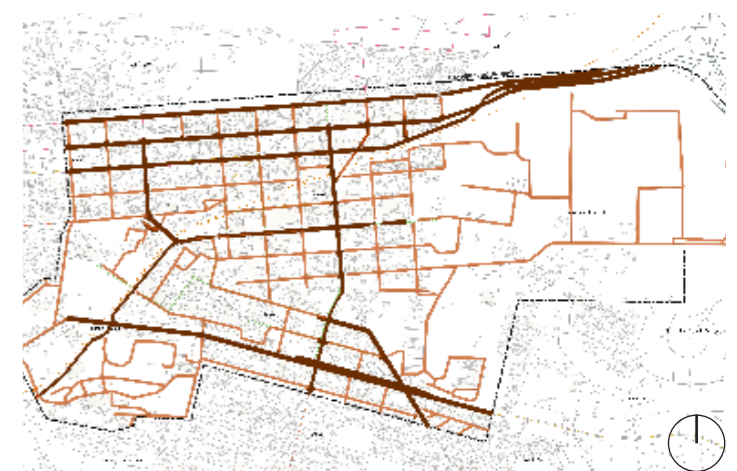
Land use isolation



Land use opportunities



Pedestrian activity map



Road map

In Hatfield, many sidewalks are undersigned. This leads to little use of restricted access public spaces, designed for walking, cycling or skating.

Through urban mapping, it was further established that motor vehicles are given priority, making it the dominant mode of transportation.



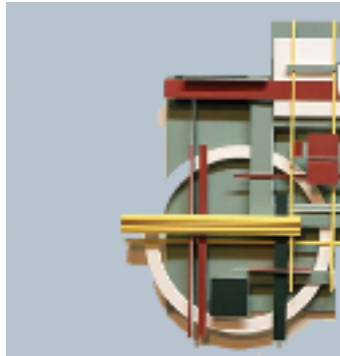
## Urban vision



The essence of each of the six distinct nodes is elucidated through the following collages. The emphasis on Active Transport is visualized through the pedestrian bridge that spans across the railway. The remaining five nodes encapsulate the essence of the urban plan's diverse programs. The sixth node stands as the vibrant interconnected market, serving as the central focal point. By intertwining distinctive space qualities with its overarching vision, contextual integration is ensured. The project radiates a festive atmosphere while celebrating nature's vitality in the public realm.



Active transport focus



Educational centre



Musical cafe



Green transportation hub

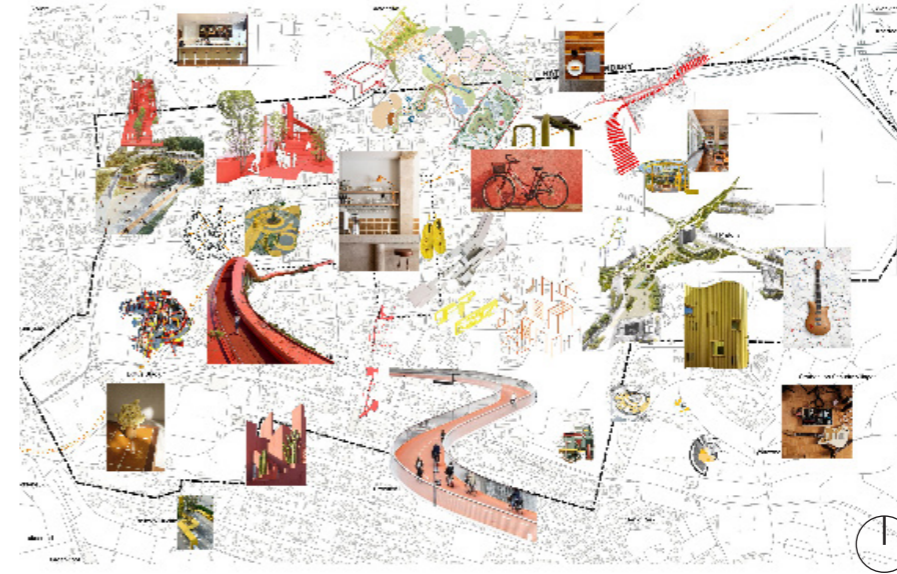


Revived campus entrance



Outside gym

## Project description



Sprawling Hatfield

In my research report, titled "Urban Transportation Modes: Measuring self-reliance in Hatfield," I found that Hatfield heavily relies on motor vehicles as the dominant mode of transportation. Private vehicles are prioritised over active transport modes like walking, cycling, and skating, as evident in the maps. This situation is worsened by fast-moving traffic that hinders pedestrian engagement. Furthermore, limited access to private green spaces and a lack of public gathering areas highlight Hatfield's exclusionary design. This design project aims to mend Hatfield's fractured link.

The project's location found on Festival St. sits between Virgin Active gym and Festival Edge residential building, divided by a railway. The northern part currently hosts the Moja Gabedi rehabilitation garden, while the southern part is a parking area. Discontinuation of Park Street, coupled with Metro train station influx, offers a chance to establish a community-serving public node.

Guided by economic circularity principles, the design shifts from car-centric modes to embrace the 15-minute city concept, aiming to restore Hatfield's broken connection. Emphasising social circularity, the design promotes diversity and proximity, creating accessible public spaces for all.



String of pearls



The interplay between Architecture and Transportation in city development is crucial. Today's architectural choices deeply impact the future, emphasizing the interplay of context, resources, sustainability, and user-centric design (Mehrotra, 2015). Adapting creativity and practicality to forthcoming circumstances prompts the design question: How should Architecture be designed for the future? This project offers holistic principles beyond the site, recognizing change as constant. Envisioning dynamic, people-centered environments, while remaining flexible over time. Pretoria's student city can shift from car dominance to vibrancy, gradually transforming Hatfield with the interconnected market that acts as a dynamic element. Marketplaces serve as hubs that nurture social connections. (Posada, 2011).

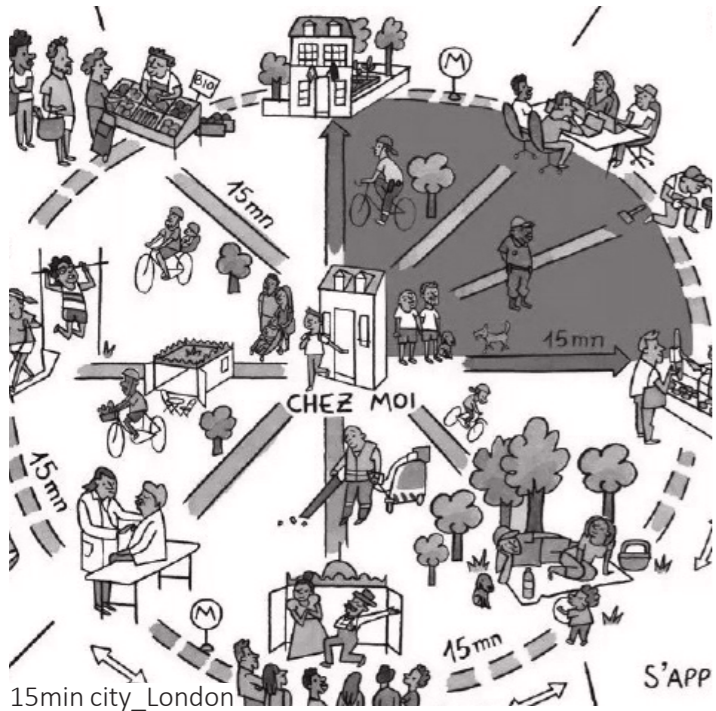
## Key theory



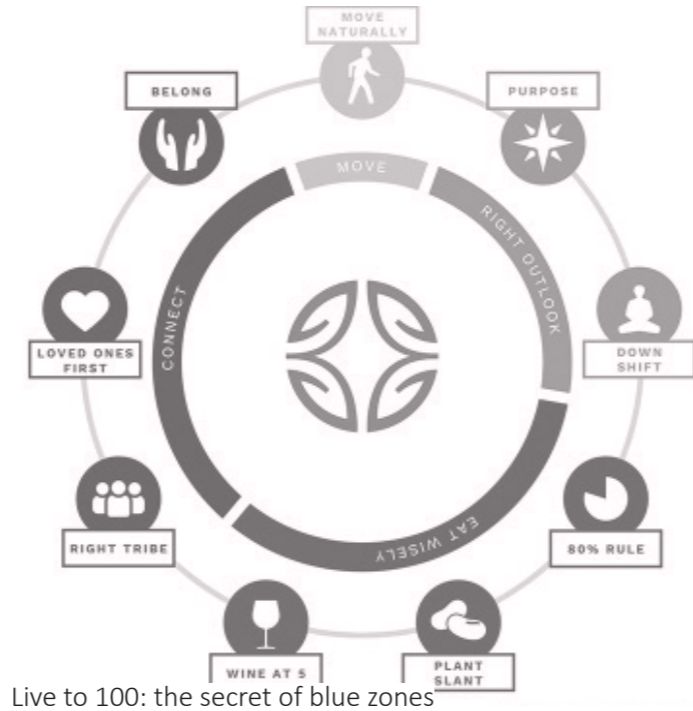
Super blocks\_Barcelona



The project is influenced by urban design principles seen in Barcelona and Copenhagen, emphasising pedestrian-friendly spaces (Bohigas, 1958). The idea of creating cities where essential services are within a 15-minute walk or bike ride is a key guiding principle (Deloitte, 2022). This approach aims to encourage regular social interactions and incorporate physical activity into daily routines (Live to 100, 2023). The goal is to create dynamic, accessible urban environments that connect people.



15min city\_London



Live to 100: the secret of blue zones



Stroget\_Copenhagen

## Design informants



Pedestrian green bridge\_Kazakhstan



Spout\_Hazelwood



Ponte Vecchio\_Venice



Bus Stop 7\_Mooikloof



Water Shed\_Cape Town

The precedents that informed the project are the NY highline, Busstop 7 (Mooikloof), Watershed (Cape Town), Ponte Vecchio market bridge (Venice), Spout (Hazelwood) and the concept design pedestrian green bridge in Kazakhstan. These precedents are public focused and active nodes in cities. The biggest critique for these precedents is that there is a specific user group, these spaces are not inclusive to all pedestrians.



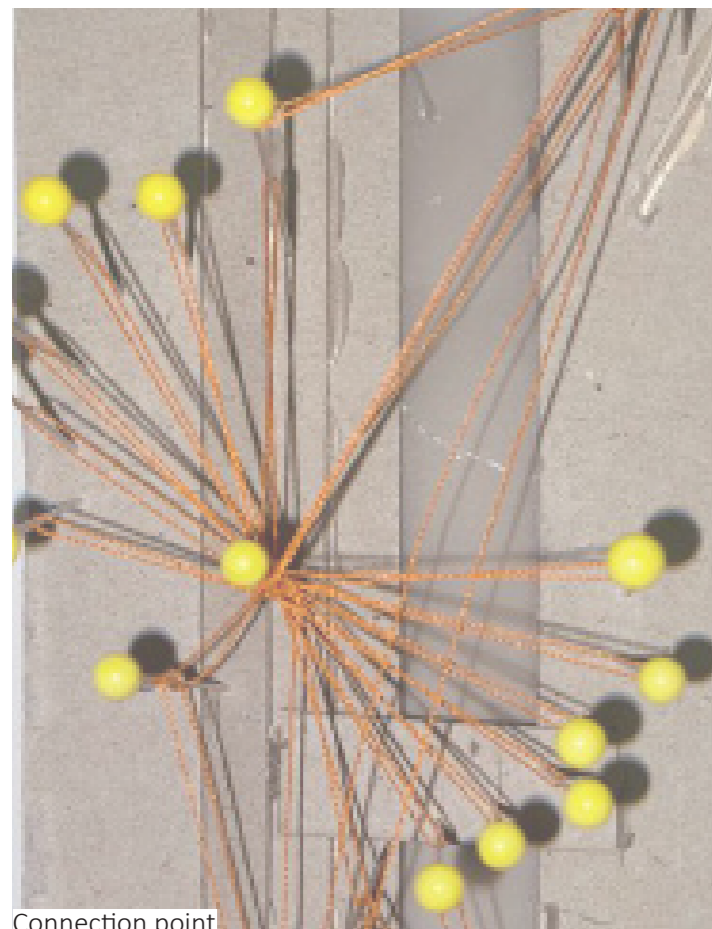
Highline\_New York



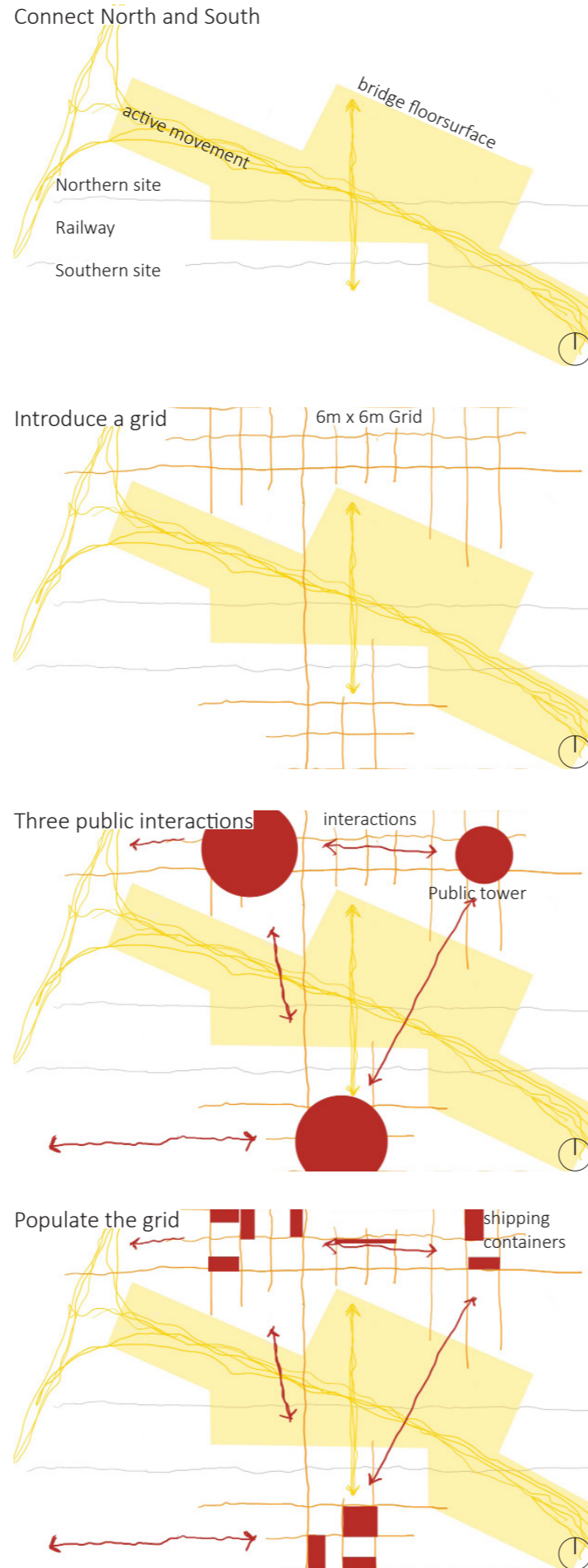
# Strategy

Embracing a strategic vision, the project introduces a series of public interventions, similar to a string of pearls. As seen in the series of diagrammes on the left, the first aspect focuses on improving accessibility and fostering a connection between North and South of the railway. A grid system forms the foundation of the second element, enabling structured and rapid development. The third objective aims to enhance social inclusivity, creating spaces that encourage diverse public interactions. A commitment to populate 30% of the grid with vibrant architectural elements takes shape through a market with student and commuter-oriented shops, casual dining options, cultural and informal spaces.

Additionally, the new space embraces an event-centric city zone and a collaborative co-working hub, both integrated within the structure of the grid. The architectural embodiment of the project serves as a nexus, seamlessly blending two or more distinct parts of the environment creating a new urban habitat. Connectivity, inclusivity, vibrancy, and integration are the objectives of this project. Through meticulous attention to detail, visual connection will be woven into the very fabric of the space. Dynamic elements will infuse the environment with motion and energy, fostering lively interactions among visitors. By ensuring a seamless edge connection to the street, the surroundings will be seamlessly integrated, dissolving the boundaries and enhancing connectivity.

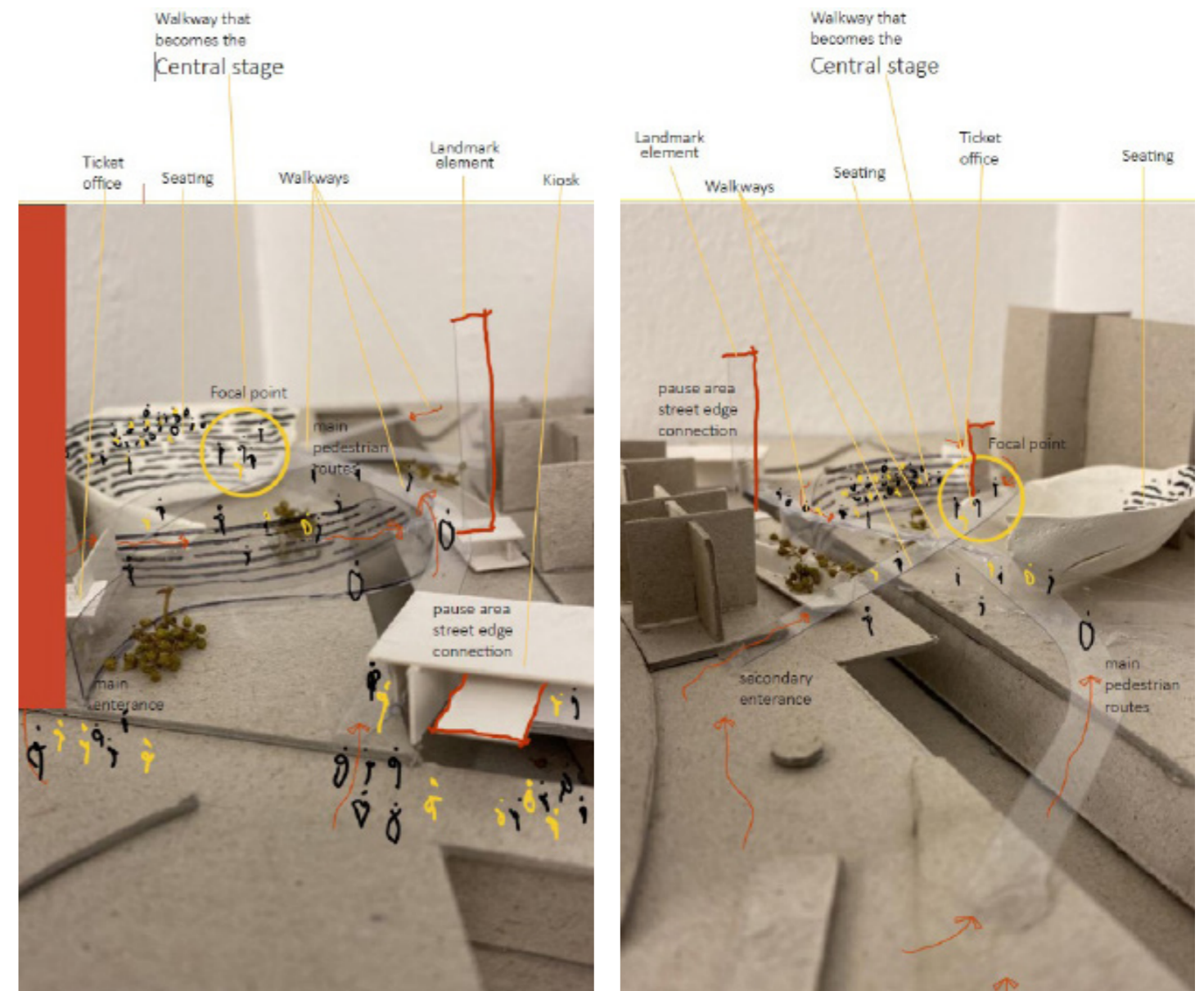


Connection point



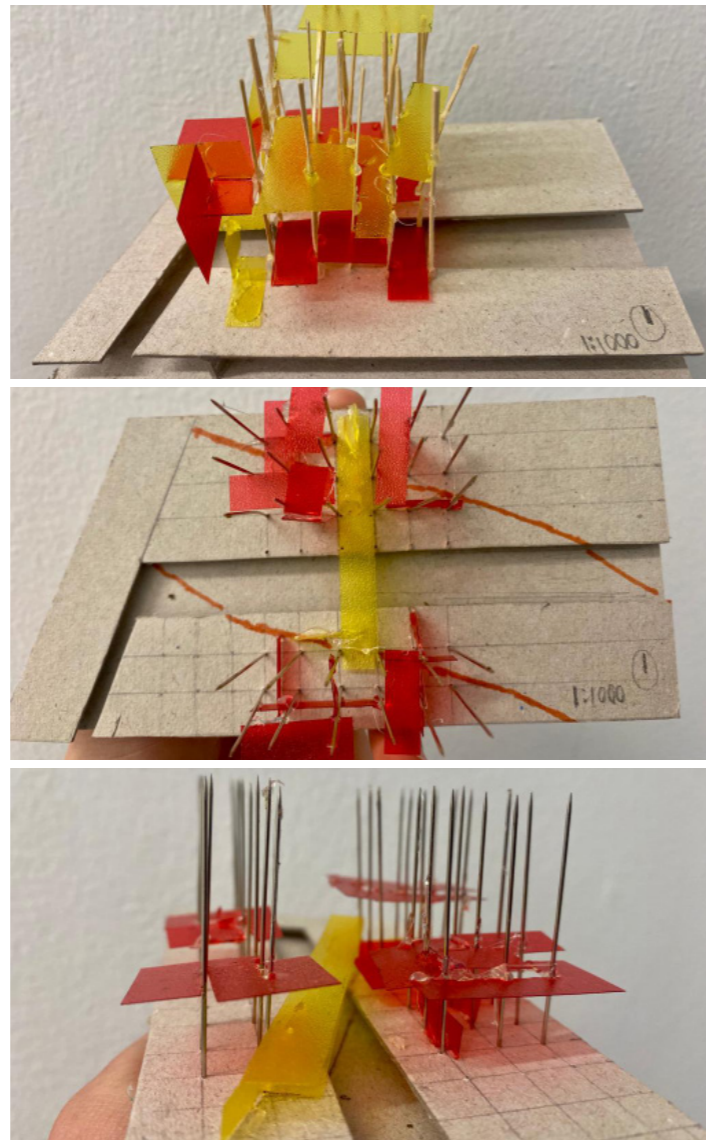
# Iterative design\_Milestone 2

The project initially envisioned a gathering point with organic shapes that focus on an event space. However, it became evident that this design overlooked the existing rehabilitation garden that is part of the context, potentially isolating the new addition. The vertical landmarks and flow of people between North and South held promise, emphasizing the need for intuitive navigation and engaging focal points. The interaction with the street edge emerged as a vital consideration, recognizing its influence on the urban experience. A pivotal realisation was that the event space should be integrated into the final program rather than dominating it, preserving the goal of creating a versatile, all-encompassing active space. Examining controlled entry points became necessary, as they contradicted the desire for a welcoming and accessible atmosphere. This prompted a shift towards a more context-appropriate response, aligning with the Moja Gabedi rehabilitation garden's unique characteristics while maximizing the current flow of people. These adjustments ensure a more harmonious integration of the project within its surroundings, emphasizing both functionality and user experience.



### Iterative design\_Milestone 3

The project transitioned into an unprogrammed space featuring movable platforms. However, this design introduced too much uncertainty. It ran the risk of leaving spaces unused because users might not utilise them as intended. There was no permanent and fixed anchor point. This presented an opportunity to utilise the bridge as the central anchor, with programs surrounding it that could adapt to different times of the day. This flexible design was tailored to cater to a new market space, serving as a unifying element and accommodating a range of interchangeable programs, providing a multitude of solutions. As the project evolved, the concept of layering programs became integral. This led to the challenge of establishing a clear hierarchy. Consequently, the focus shifted towards clusters of shipping containers. These adjustments were made to ensure a sustainable long-term and community-focused solution, prioritising both environmental and social considerations. Furthermore, the integration of flexible and interactive technical components will be taken into the next iteration. As it plays a pivotal role in reinforcing the overarching concept of movement, infusing the project with a dynamic, adaptable essence.

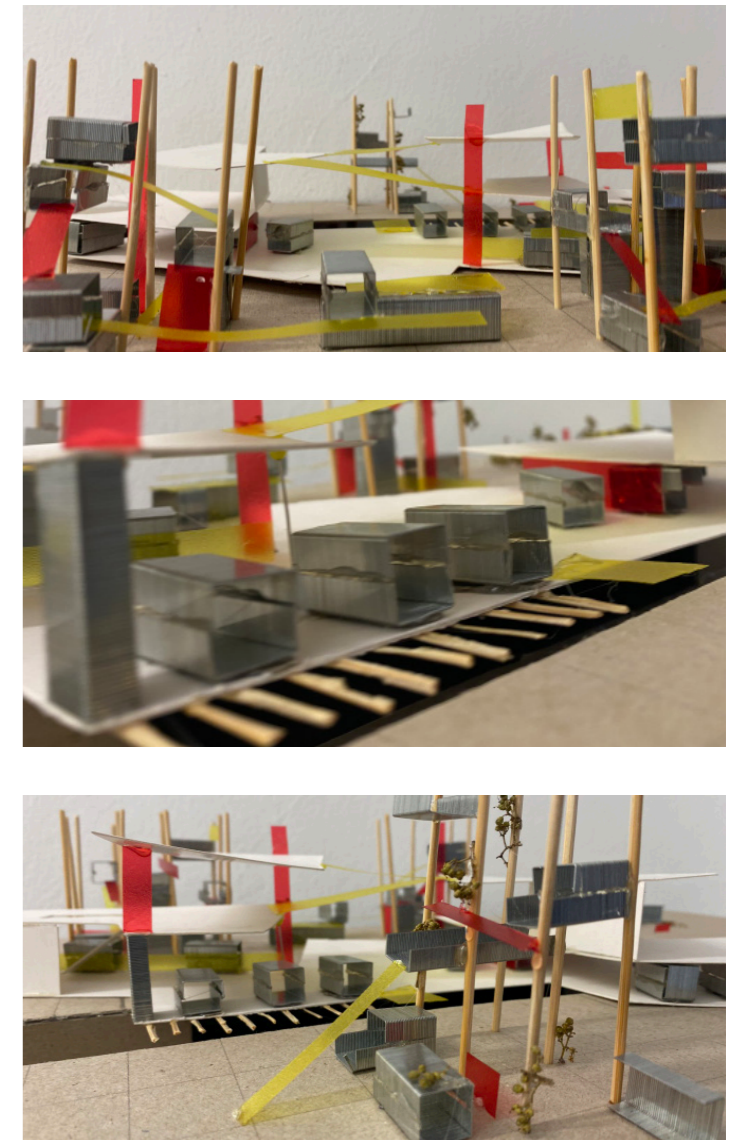
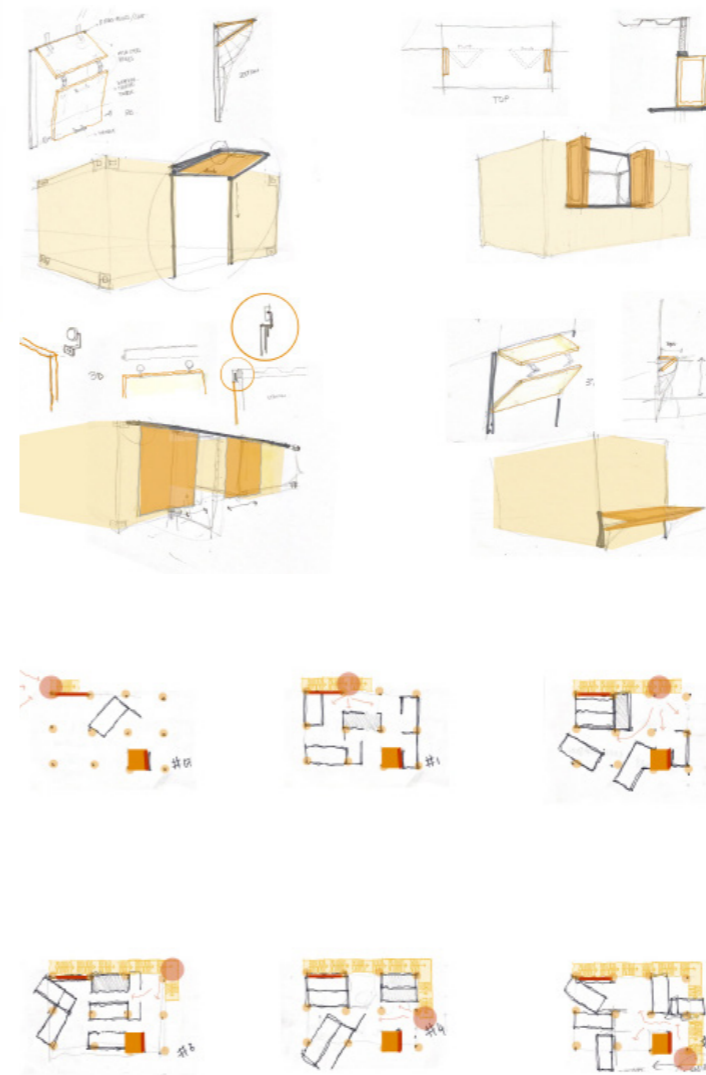


### Iterative design\_Milestone 4

The primary structure, consists of columns and beams, is supplemented by a secondary framework to accommodate movement systems, walls, and service ducts. A permanent crane stands as a distinctive feature, serving as both a wayfinding beacon and an elevated viewpoint offering panoramic city views. This crane is also instrumental in integrating containers into the structure, providing crucial stiffness during their movement, transportation, and lifting operations rather than for stacking.

The plan initiates by filling the grid with a combination of containers and wooden panels, leaving permeable spaces between them. This prioritises pedestrian access to nature, ventilation, and easy entry into the tower structures. The on-site crane enables swift container additions with pre-fitted interiors, enhancing operational efficiency and adaptability. This versatile tool is pivotal for seamless adjustments as needed.

Spaces within the three towers transition from more enclosed and intimate settings during the day, accommodating hot desks, cafes, and consultations, to open configurations in the evening for bars, restaurants, and dance floors.





# Design and technology

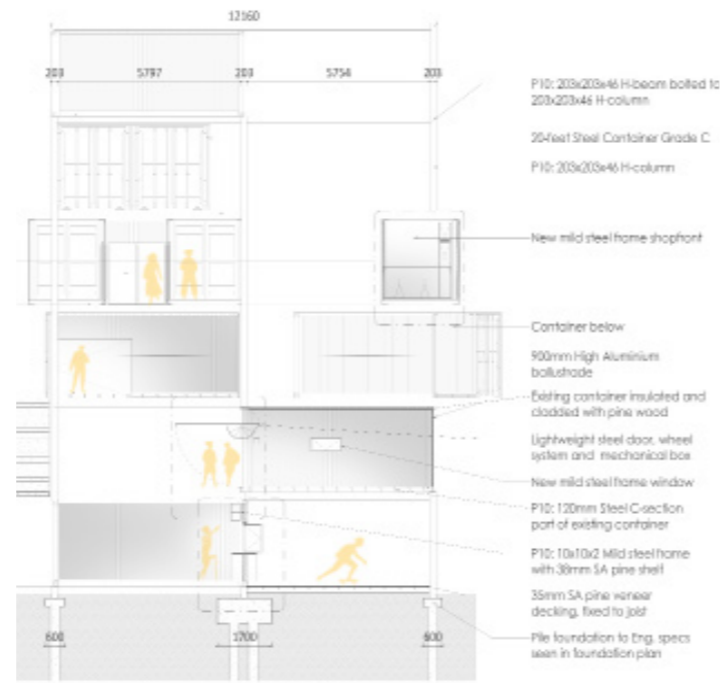


Ensuring the long-term relevance of this project is paramount, necessitating a design that seamlessly adapts to evolving needs throughout the day. Flexibility extends beyond a 24 hour cycle, to weeks, months and years. Changes in program or even seasonal shifts of use can be made overnight, with the help of prefabrication and the on-site crane. By offering private consultation rooms, learning spaces, cafes, and markets, the facility functions as a dynamic meeting space. During evenings and weekends, it transforms into a vibrant hub, exuding club and bar atmospheres. Notably, the newly constructed bridge connecting Northern and Southern Hatfield hosts an active market with interchangeable outlet stores, providing a constant presence day and night.

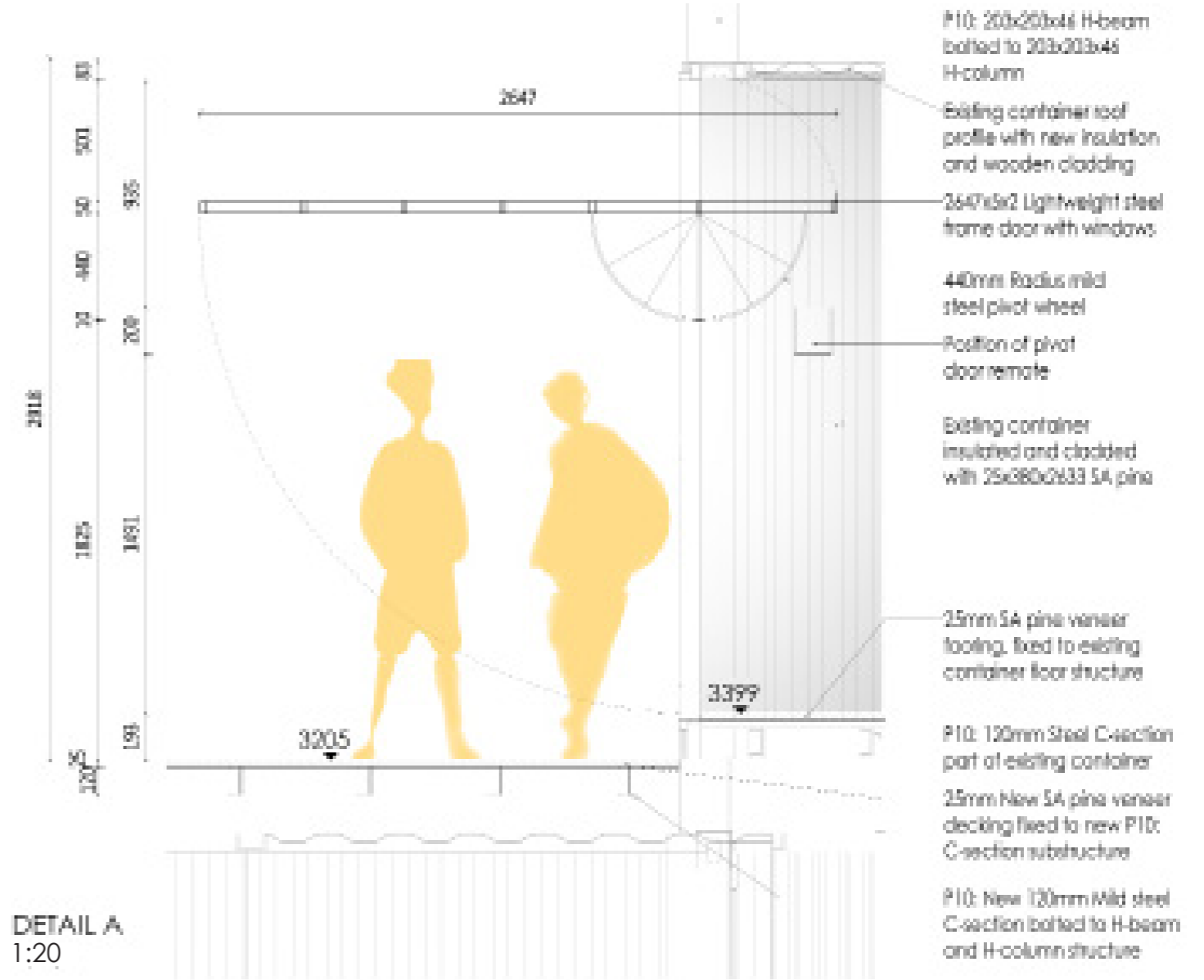
The utilisation of containers stands as a testament to the project's commitment to environmental sustainability, cost-effectiveness, and structural robustness. Research demonstrates that containers have a lifecycle predominantly at coastal regions, yet many end up prematurely decommissioned inland (Sithole, 2023). The United Container Depot in JHB serves as a poignant illustration of this phenomenon, presenting a valuable opportunity for repurposing in this project (Sithole, 2023)

Central to the design philosophy is an emphasis on flexibility and intractability. The primary structure consists of columns and beams, supplemented by the secondary structure to accommodate movement systems, walls, and service ducts. Finally, containers are integrated into the structure. It's important to note that containers serve a crucial role in providing stiffness during their movement, transportation, and lifting operations, rather than being used for stacking purposes.

This project's design and technical construction embody a forward-thinking approach, prioritising adaptability and user-centric interaction. The integration of containers not only aligns with sustainability goals but also provides a cost-effective and durable solution. The deliberate planning for future expansion ensures the project remains relevant and accommodating in the face of evolving needs. This innovative design stands as a testament to the potential for dynamic urban spaces to enhance community connectivity and engagement.

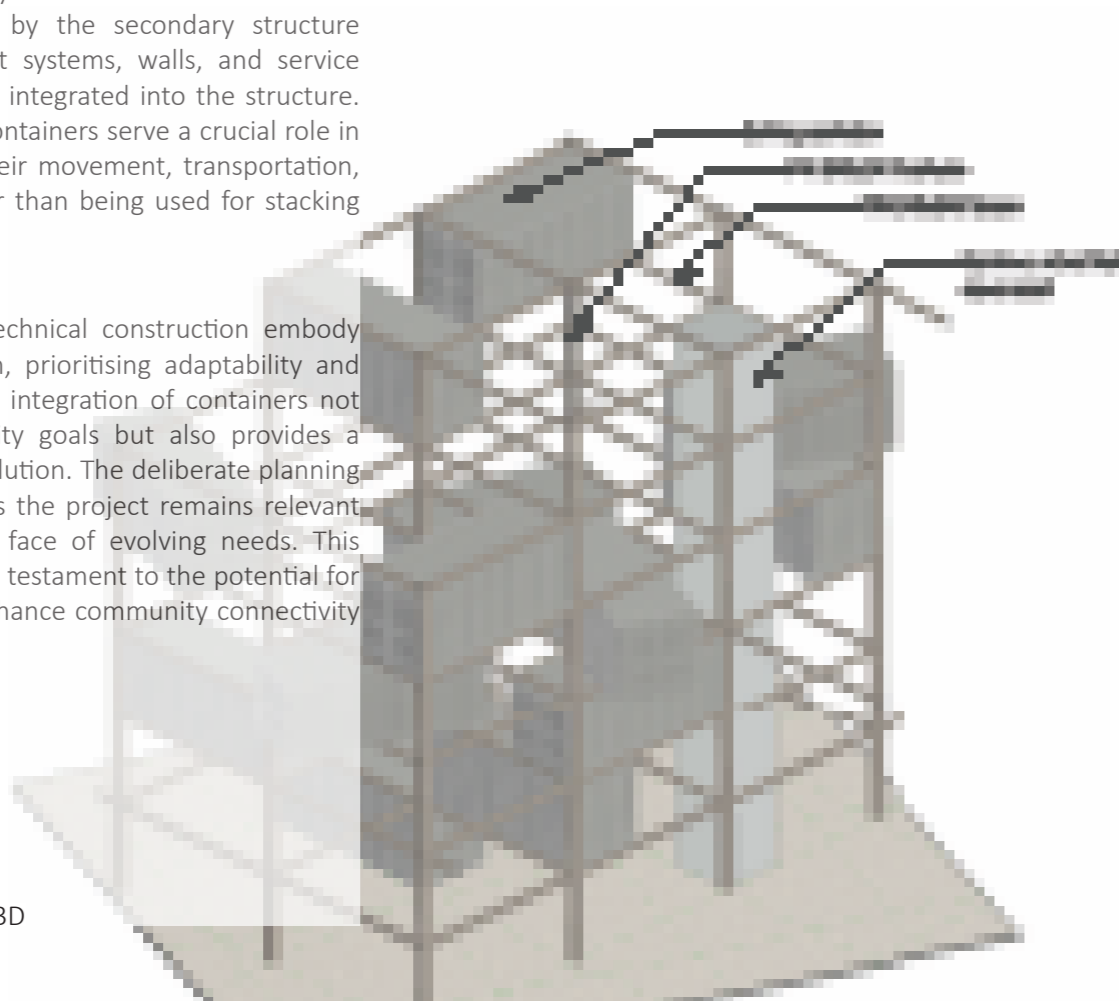


Section AA 1:200



DETAIL A 1:20

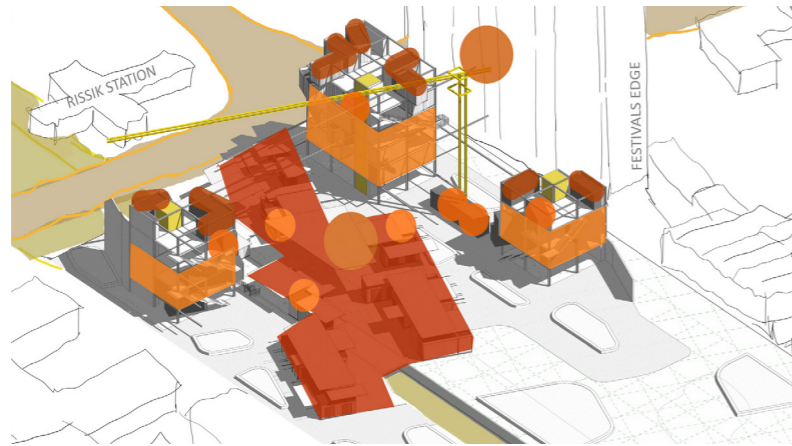
3D



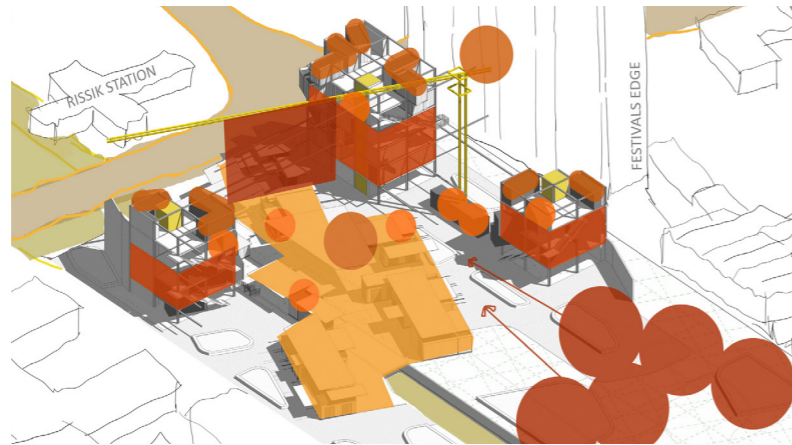
# Flexible programmes



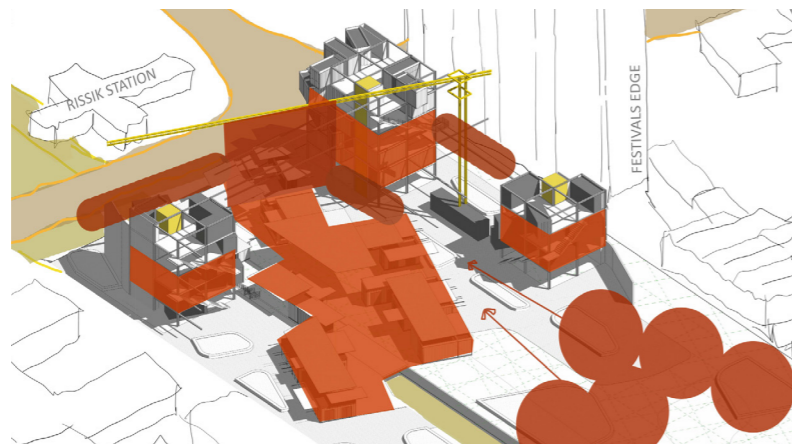
06:00-12:00



12:00-18:00



18:00-00:00

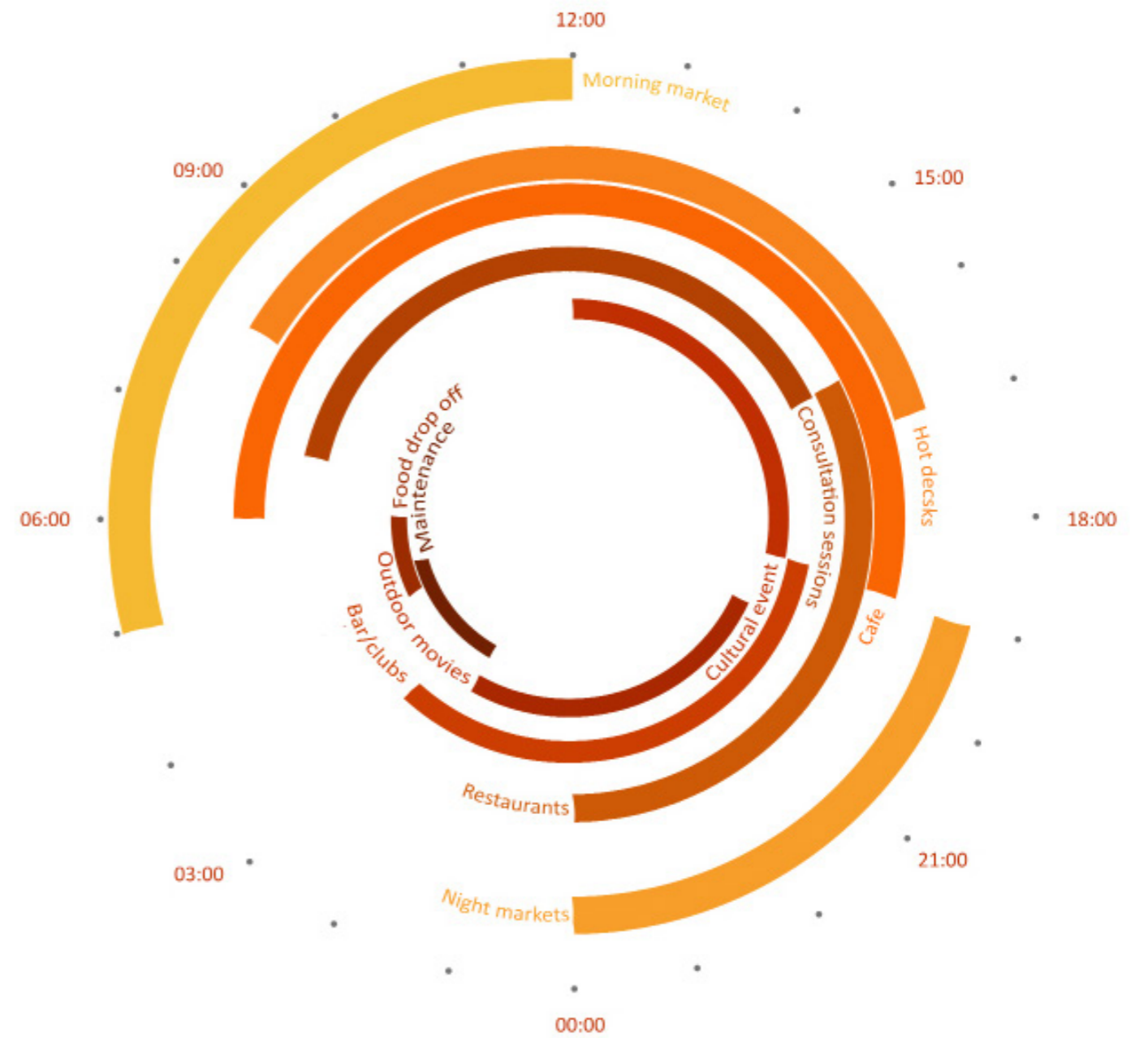


00:00-06:00

The flexibility in programmes ensures that the site is active 24/7. During the day it includes: morning market, hot desk, cafe, consultation sessions and cultural events. During the night it includes: Night market, restaurants, bars, outdoor movies and maintenance.

The project seamlessly adapts from a layered working space during the day to an integrated lively hub with club atmospheres at night, with a bustling market on the new bridge connecting Northern and Southern Hatfield, ensuring constant activity day and night.

The structures are meticulously crafted to stand the test of time, with adaptable programs that can evolve alongside future needs.





In my five-year residency in Hatfield, transportation emerged as a pivotal yet unresolved issue. According to Siphos Kings (2016), cars make no sense in a city and public transport is part of the solution in order to improve cities. Siphos Kings' assertion that public transport is integral to urban improvement resonates deeply, highlighting the need for a comprehensive solution. My project seeks to integrate pedestrians into Hatfield's urban fabric by prioritising user-centric design, focusing on the following five elements: economy, nature, transportation, buildings, and energy. Rather than placing humans atop a hierarchy, they are viewed as integral components of each element.

Drawing from a first-year perspective, I gleaned insights about centrality, purpose, and unexplored potential within the urban landscape. Balancing economic development, social progress, and environmental responsibility, I envision a shift from mere sustainability to regenerative thinking. "You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete." - Buckminster Fuller (1970)

In tackling Hatfield's transport inefficiencies, my project pivots on the core principle of prioritising pedestrians. I recognize the interdependence of the five elements; their collective synergy yields more impactful results than in isolation. I remind myself to layer and integrate these components comprehensively, emphasising a holistic approach.

As the catalyst for positive change in Hatfield, I aspire to be the bridge-builder, facilitator, and advocate for a reimagined future. Through my major project, I aim to craft a narrative that envisions a Hatfield transformed, where transportation seamlessly integrates with the broader urban fabric, fostering a thriving, sustainable, and inclusive community.





The Interconnected Market project presents a set of intricate challenges, each bearing critical importance in shaping its ultimate success. One of the foremost challenges lies in defining the project's identity – is it primarily a bridge, a tower, an open space, or a combination? This pivotal decision fundamentally influenced the project's form, function, and overall impact on the Hatfield urban landscape.

Another crucial consideration was the choice of programmatic elements. Determining how the space will be utilised and experienced by the community is a multifaceted task. Striking a balance between commerce, recreation, and communal spaces requires a nuanced understanding of local needs and aspirations. This deliberation is paramount in shaping the project's identity and ensuring it resonates with the community it serves.

Furthermore, the concept of flexibility emerges as a pivotal design principle. Deciding what elements within the structure can be adaptable, and to what degree, requires thoughtful consideration. A balance must be struck between providing a stable and cohesive architectural framework while allowing for dynamic, evolving uses that respond to the changing needs and desires of the community over time.

The roof design, too, presents a significant challenge. An element that not only provides shelter but also plays a vital role in defining the visual identity of the project. Balancing functionality, aesthetics, and structural integrity in the design of the roof demands a comprehensive understanding of both architectural and system principles.

It's crucial to acknowledge that success hinges on a comprehensive approach. This entails engaging stakeholders, utilising expertise in both architecture and engineering, and incorporating established urban planning principles. The revitalization of previously underutilised spaces along the railway and the transformation of once-exclusive private areas into inclusive, vibrant, and adaptable spaces are central to the project's success. This holistic approach is instrumental in crafting a conceptually transformative and enduring urban space in Hatfield.

## Conclusion



In conclusion, the Hatfield project vividly illustrates the profound impact of integrating architecture, transportation, and urban mobility. Offering a holistic approach to urban development that addresses the pressing need for sustainable and accessible transportation solutions in Pretoria's dynamic student city. Through the conversion of liminal spaces along the railway, the project has the transformative potential of thoughtful design interventions. The introduction of versatile, dynamic spaces empowers users to customise the environment to best suit their needs. This endeavour not only renews the urban landscape but also demonstrates how user-centric spaces can empower communities. By prioritising active transportation, the project not only enhances accessibility but also fosters a safer and more engaging pedestrian experience in Hatfield. This successful convergence of architecture and transportation serves as a symbol of positive transformation, emphasising the enduring value of crafting adaptable, user-centric spaces that thrive and adapt over time.

"The greater a building's flexibility and its ability to adjust to evolving user needs, the more it will extend its functional lifespan." (Prins, 2009)





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I extend my deepest gratitude for your invaluable time to go through the summary of my project. I believe this project has the potential to reshape perspectives and redefine approaches to Architecture and design.

I want to express my profound gratitude to Jesus, for without His unwavering strength and grace, this project would not have come to realisation. Thank you for Your continuous blessings that enabled me to navigate through challenges and complete the project to the best of my ability.

I would like to acknowledge and extend my appreciation to my esteemed lecturers, Calayde Davey, Christo Van Der Hoven, and Jan Hugo. Your guidance has been instrumental in shaping my understanding and contributing to the success of this endeavour.

To my friends, known as 'Heeltyd speeltyd,' your company during moments of relaxation, whether over jalapeno poppers, ping pong, fuzz ball, or our insightful sessions at Capital Craft, has been a source of inspiration and joy. Special thanks to the Hatfield group for consistently offering invaluable advice and contributing to the success of debrief sessions.

Last and most importantly, a heartfelt thanks goes out to my family. Your unwavering support and care provided the anchor that carried me through each day. A special acknowledgement to Daddy and Moeksie for your sponsorship of this degree, for wiping away my tears, for the weekends at Kamonande, for the cheese platters on weekends and for reminding me of the broader purpose. Your love and encouragement mean the world to me.

Once again, thank you all for being an integral part of this journey. Your contributions have not gone unnoticed, and I am profoundly grateful for the role each of you has played in making this project a reality.

