

Down The Line In Gateway and Beyond

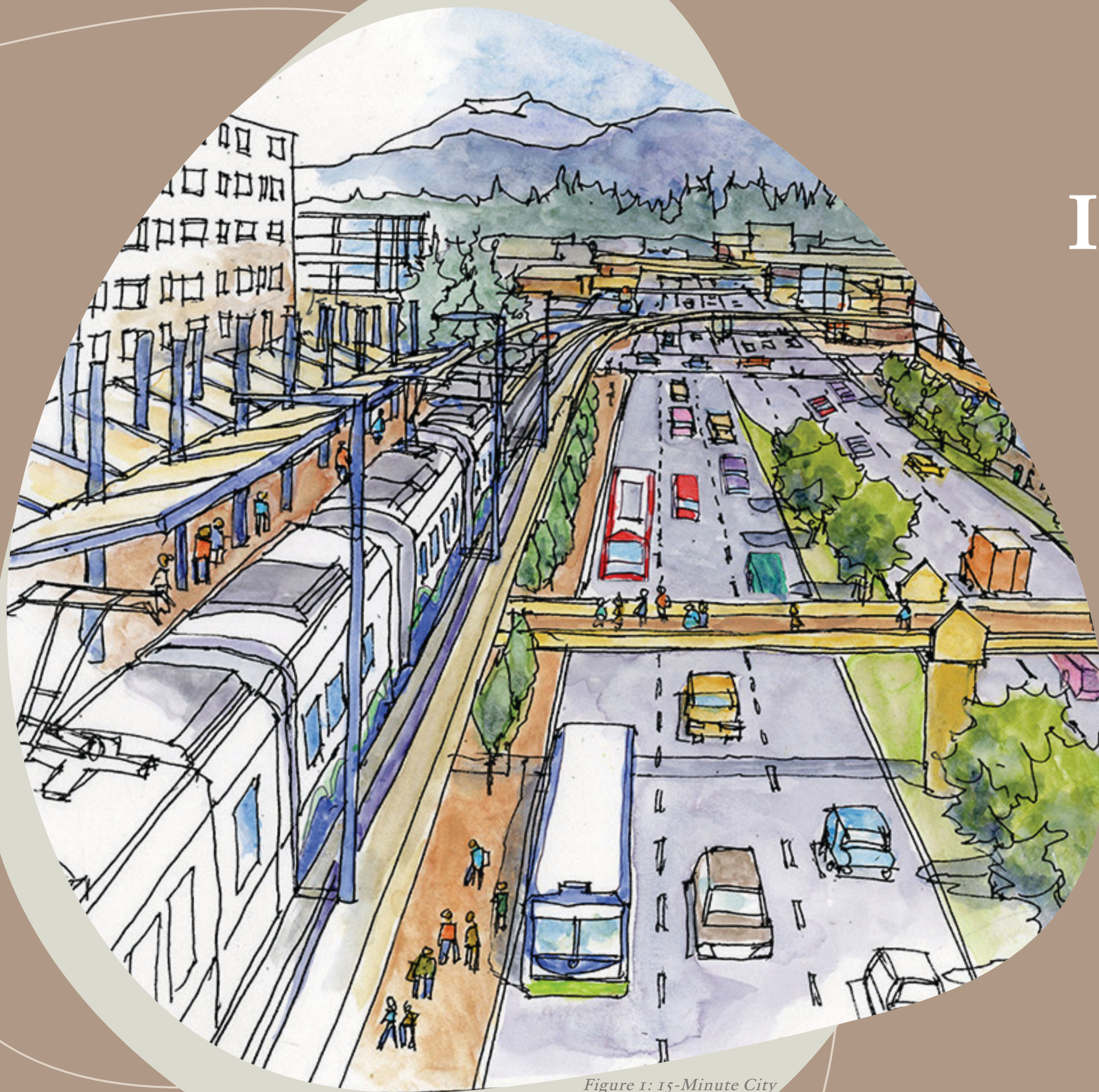


Figure 1: 15-Minute City

“Hello, my name is Daniel Teeler, my advisor is Rob Ribe, and this is my project ‘Down The Line In Gateway And Beyond’. My project explores future options for vehicular-free cities. It seems that this is a novel and unlikely prospect so let’s explore why!”

This project uses animated elements to communicate design decisions. Please experience the project with animations using the following link:
https://1drv.ms/p/s!Ak1fk0RR7tLH0Wq3JVcRM2kPld_y?e=Jxmvl

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Figure 2: Angle Lake Station Exit

Drive



Figure 3: Angle Lake Station

Ride

Walk

My Commute

"Back in 2017 I was a student at the University of Washington and like most people I couldn't afford to live in Seattle. The drive from my home in Kent was 25 miles and unavoidably went straight through Seattle. This could take as little as 30 minutes, but never took less than an hour. Lucky for me the light rail had just recently been extended to connect me from the southernmost station to the northernmost. A metro-pass was included in my tuition so the obvious choice was to take the light rail right? Wrong. Though I commuted via light rail almost every day, driving was still the easy and convenient option and even though it made me a part of the problem there were still some days I chose the easy and convenient option anyway. My commute via light rail actually took longer than sitting in rush-hour traffic. I had to drive twenty minutes to the station, then ride an hour to the university, then walk fifteen minutes to class. I also had to make sure my first class was as early as possible because the parking garage at the Kent station would be completely full by 7:30. If I was running late the garage would be full, forcing me to drive to school and arrive late to class. Choosing not to drive also meant that I had to go straight home because the rail routes and running times did not reach anywhere I needed to go. Add to that the uncomfortable seats, sketchy people, cold and dirty stations, and its little wonder why most people prefer to fight the traffic."



Figure 4: University of Washington

Evolution of Automobile Infrastructure



Figure 5: Hasting's Street, Detroit, 1959



Figure 6: Hasting's Street, Detroit, 1961

"In my ignorance I used to wonder why the city didn't just add two lanes to the freeway, or five lanes, or twenty! The truth of the matter is that adding to our existing road infrastructure rarely alleviates traffic for long. The best way to reduce traffic congestion is for people to drive less. It's a simple thing to explain, but a frustratingly difficult thing to implement. The reason that driving everywhere makes sense is that the freedom driving enables has driven our landscapes to be designed primarily for driving. We have built our cities primarily for cars."

Evolution of Automobile Infrastructure



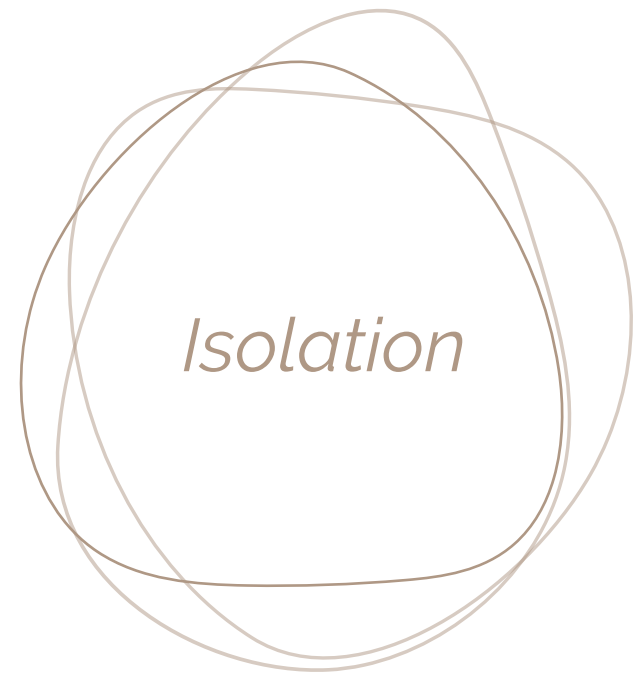
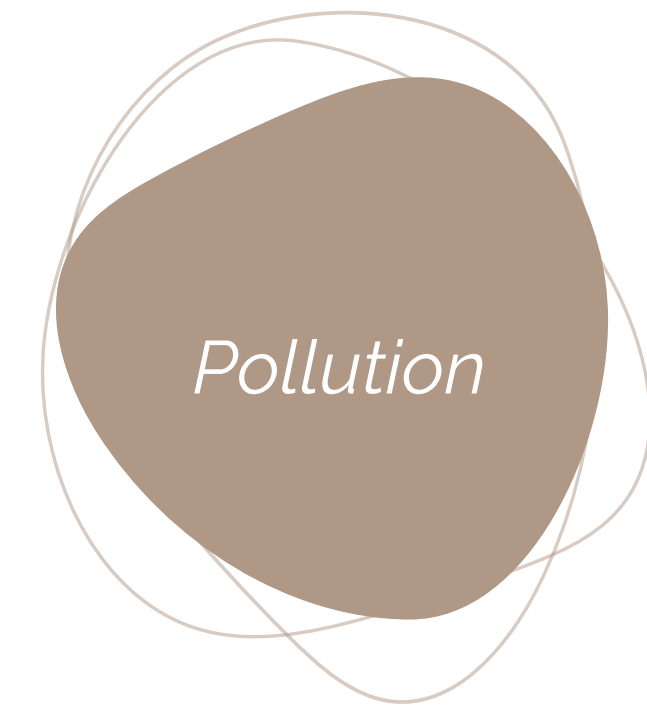
Figure 7: "Highway 61 Revisited", Existing, Duluth Waterfront Collective, Duluth Minnesota



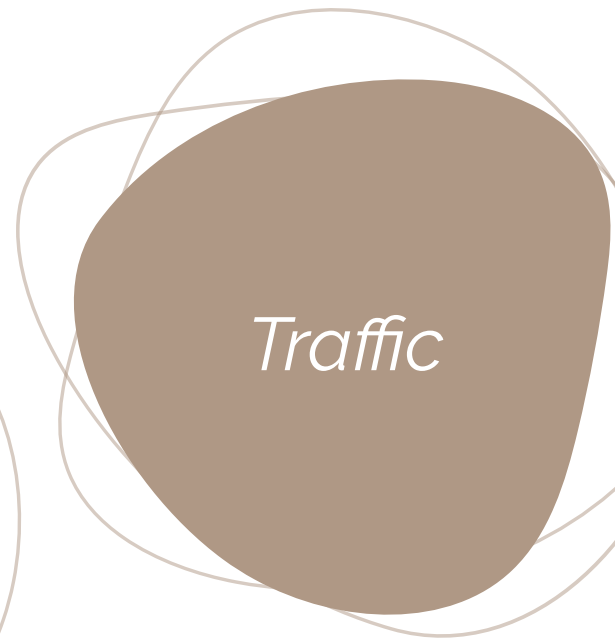
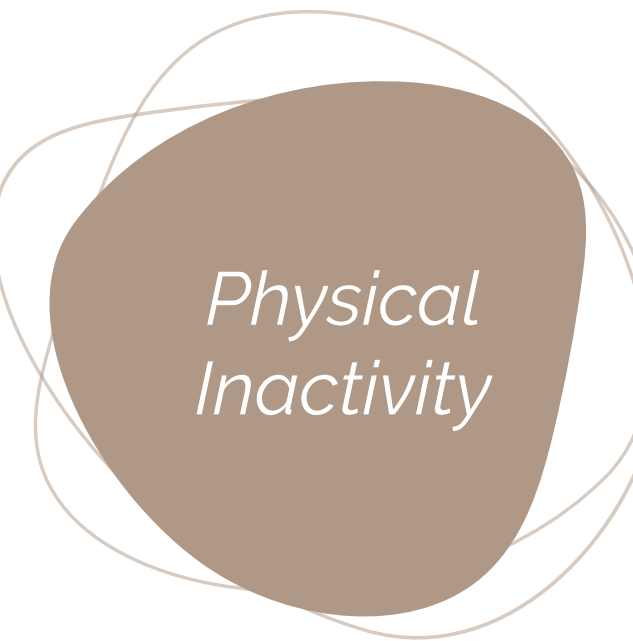
Figure 8: "Highway 61 Revisited", Proposed, Duluth Waterfront Collective, Duluth Minnesota

"The alternative however, could also be true. If urban landscapes were designed for walking and riding those options might become the most sensible. This is the essential question of my design as research project."

“The potential benefits to be gained by deemphasizing the automobile and prioritizing the pedestrian and micro vehicle are great, yet the practicality of developing car-free urban areas makes it intimidating to attempt though incremental progress is now being tried.”



Personal Car Dependence



Great City Chengdu



Figure 9: "Great City Chengdu" Masterplan



Figure 10: "Great City Chengdu" Perspective



Figure 11: "Great City Chengdu" Perspective

“One tactic being tried is to create new cities from scratch. In Chengdu, China the ‘Great City’ has been designed and is intended for development as a prototype for other cities of its kind. Within Chengdu is an example of a ‘15-minute city’; a conceptual city in which all essentials are accessible within a 15-minute walk or bike ride.

Building new cities is one approach, but what can we do for the over 10,000 cities that already exist in the world?”

"In order to reap the bounty of potential benefits from car-free development we will have to dismantle and hybridize existing automobile landscapes and implement policy and infrastructure to increase the freedom, comfort, safety, convenience, and cost-benefit of non-car travel. How do we convince people to give all that up?"

Transportation Flexibility

Reduced Stress

Saving Money

Cleaner Air and Water

More Personal Interactions

Personal Car Independence

20 Million Miles of Roadway Repurposable

Saving Lives from Automobile Deaths

Physical Health

Statement of Purpose

"I have used my time and resources through this master's project to develop a speculative design of a car-free development. My design is intended to be a prospective design grounded in idealism similar to Ebenezer Howard's 'Garden Cities of Tomorrow'.¹ Like Howard's 'Garden Cities' I am proposing something new and beyond Transit Oriented Design. As of yet no large-scale intentionally designed car-free urban developments exist. There are car-free districts and towns in the world. Most have come to be car-free through some combination of impoverishment, lack of population, tourist appeal, lack of space for large roads, or geographic isolation.²"

"This project has become an endeavor in research-through-design. I have searched through existing research and combined these with my own ideas to develop a number of goals and objectives essential to a car-free development. I implemented these into a concept masterplan for a transit-oriented district within an existing city. I then further developed a hierarchy of circulation typologies and areas of detailed design. And finally I concluded with a self-critique. My intention is that this can be used as a precedent by those who would attempt more work in the field of car-free urban design and transit-oriented development. It may prompt more intentional work in this area."

Project Goals

Wellbeing

Emotional

Community Amenities

Mental

Access to Green Sightlines
Restorative Spaces

Physical

Essential Services Safety
Recreation Microclimate

Socio-Economic

Low-Income Housing
Provison for Homeless
Anti-Gentrification

Transportation

Comfort

Station Design Privacy

Efficiency

Transit Circulation
Wayfinding Proximity

Convenience

Micro-Vehicle Storage
Smart-City Technologies
Consistency Fare Integration

Safety

Eyes On Vibrancy
Vehicle-Pedestrian Interactions
Crossings and Intersections
Pedestrian-Scale Lighting

Viability

Mixed Use

Housing at Multiple Income Levels
Parks and Green Space
Commercial Zone Adaptability

Access

Garbage Pick-Up Cargo Delivery
Connection to Hazelwood
Emergency Vehicles

Density

Customers for Commercial
Create Vibrancy
Increase MAX Ridership
Provide Housing

Environmental

Canopy Coverage Photovoltaics
Passive Energy Saving
Material Recycling

“For the car-free development I have designed to be successful it needs to be somewhere many people will be happy to live. It needs to make life without a car comfortable, convenient, and freeing. And it needs to make sense practically and economically so that there will be feasible incentives to build it and more developments like it. I refer to these three metrics as ‘Wellbeing’, ‘Transportation’, and ‘Viability’. There are a lot of goals necessary to creating an effective transit-oriented-development and even more-so when you introduce the challenges involved with eliminating traditional vehicle use. I began my work by identifying many of the goals a design team would have to achieve if they were to see this design through to 100% completion, as listed in small print on this page.”

Selected Goals and Objectives

Goals

Access to Green

Community

Station Design

Circulation

Micro-Vehicle Storage

Vehicle-Pedestrian Interactions

Wayfinding

Essential Services

Provide Housing

Objectives

All residents will live within 500' of the site walking trail/green space

A circuitous greenway will provide a loop for walking and riding

Provide at least 25,000 square feet of outdoor "community spaces" (plaza, patio, seating, socializing)

Arterial walking paths will be at least 10' wide to accommodate large groups, seating areas, street vendors, etc.

A transportation HUB will facilitate embarkations and transfers between independent networks

Transportation HUB will provide appropriate seating, shading, lighting, signage, and ticketing

Food and amenities will be included in close proximity to the transportation HUB

Increase safety and efficiency by seperating mobility types spacially

Maximally direct paths will connect the transportation hub to all areas of the site

A hierarchy of path typologies will facilitate safe and efficient travel for micro vehicles and pedestrians

Path network will connect to existing paths in multiple places along site edges

"e-lockers" will be provided for all site users to store and charge micro vehicles

"e-lockers" will be located so that no area is more than 200' away from one

Micro vehicles will have dedicated lanes physically seperated from pedestrians

Refuges at crossings will ensure that pedestrians only cross one direction of micro vehicle traffic at a time

Frequently placed mount and dismount zones will enable safe pedestrian-vehicle transitions

A combination of global and local landmarks will aid wayfinding

Signage at major intersections will help direct site users and display transit information

One path typology will allow the neccesary clearance and turning radius for emergency and utility vehicle access

Building usage will include space for living, working, commerce, healthcare, education, and entertainment

Fred Meyer and the Oregon Medical Clinic will remain on site

All buildings will be built up to within 25% of the maixmum allowed building height (75')

25% of housing will be rented at rates of 80% Median Family Income (Low Income Housing)

“I have explored specifying objectives for all of my goals and have tested selected ones in my design as research. This refined list with associated objectives includes the goals I have identified as the most essential and the most unique to this project. Though I have attempted to satisfy all of these objectives those which are outlined are of particular significance to this project.”

“Transitioning a city away from its car-centric origins will need to happen piece-by-piece. I have done my design with the intention that it is among the first steps in this transition. The Gateway Center was suggested to me as a site by my advisor Rob Ribe as it is well suited to be one of the initial car-free developments of Portland. TriMet, Portland’s public transportation agency has been actively promoting the development of this site into a transit-oriented development since 2000 in which they created a redevelopment strategy called ‘Opportunity Gateway.’³ This plan would provide high density housing, a ‘second downtown’, and increase ridership of the MAX light rail. Since most of the property is owned or leased from Pac Trust and a good portion of the existing businesses are profitable there is little incentive for them to sell or redevelop the property as a whole, but it is reasonable to assume that the option may open up in the next 10-20 years. The Gateway Fred Meyer, opened in 1954 was one of the first commercial areas in East Portland. ‘Mr. Meyer saw the Gateway Store as a Harbinger of a new kind of shopping, which was based on large stores easily accessible by auto’. The shopping center prompted rapid development in the area. The MAX light rail station was completed in 1986 soon after I-205 was constructed. The light rail hub plus the I-84 - I-205 interchange is what makes this site a gateway to East Portland and the surrounding area.”



Figure 13: Historic Gateway Shopping Center

Opportunity Gateway

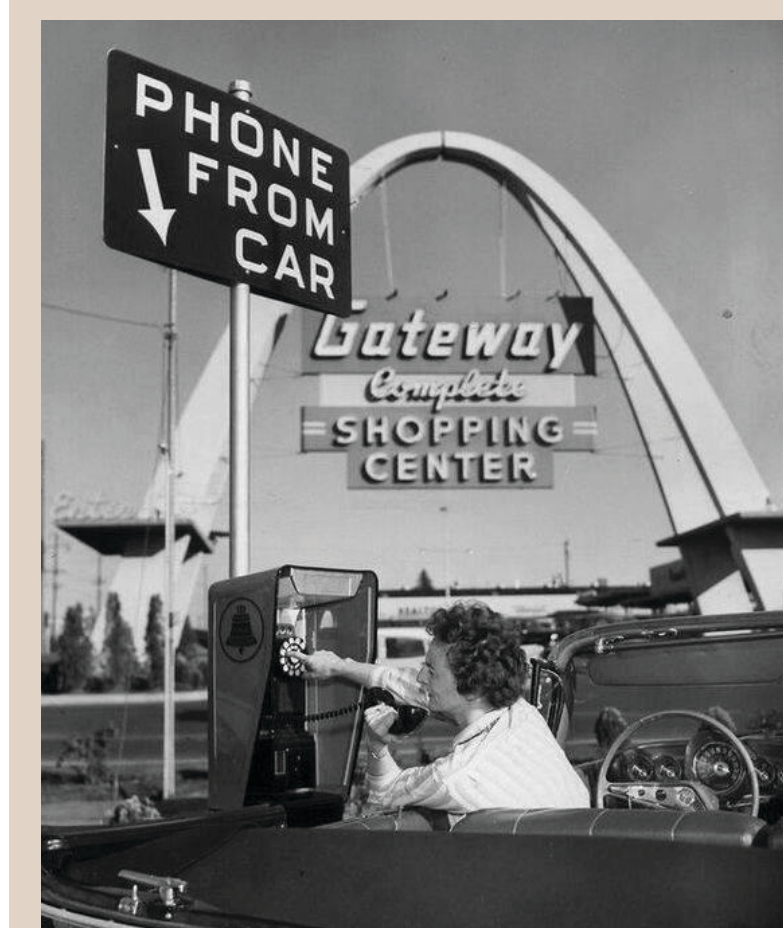


Figure 12: Historic Gateway Shopping Center Iconic Arch



Figure 14: Gateway Shopping Center, Current Satalite Imagery

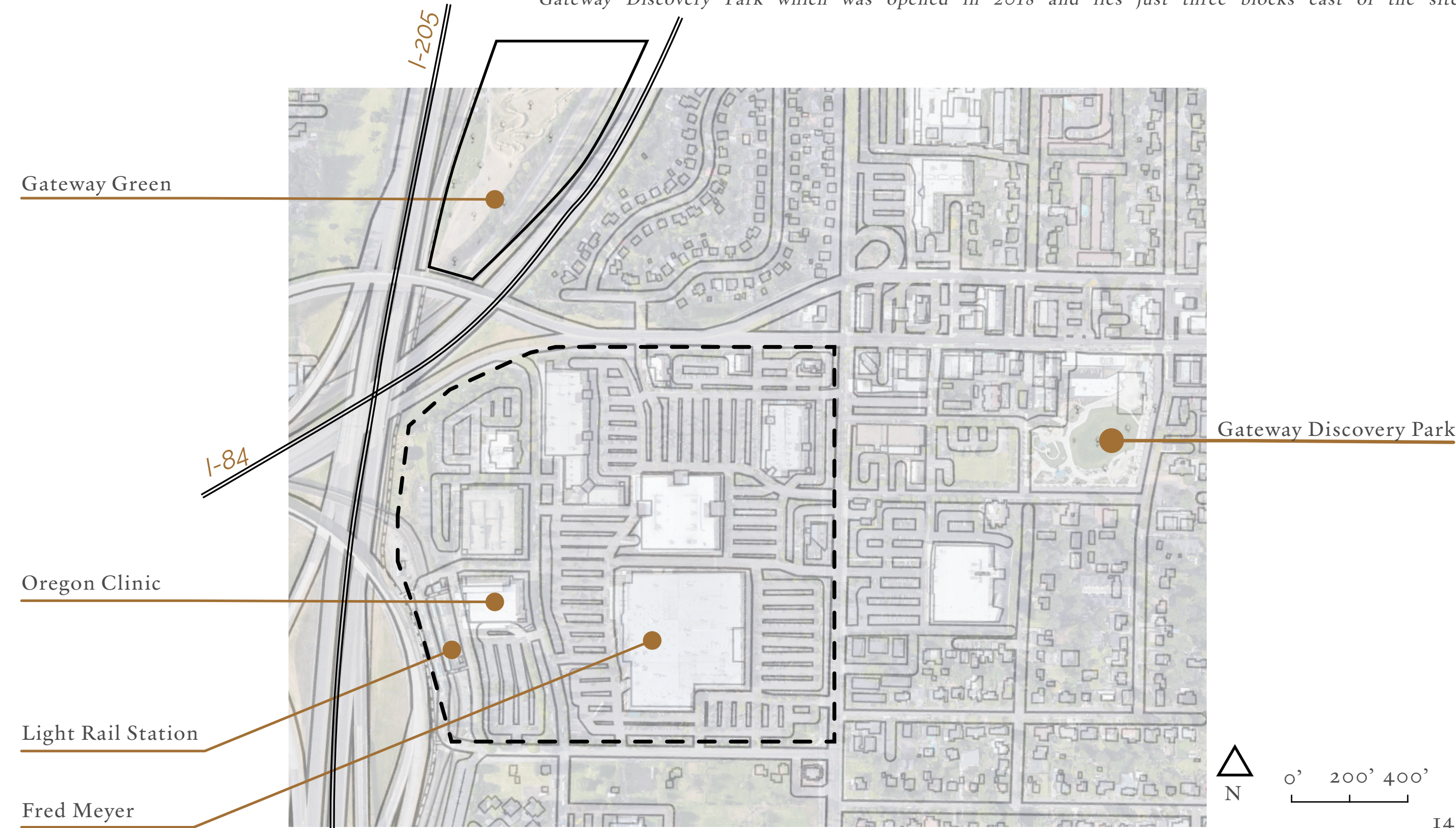
History of Intention

“Gateway’s story is full of broken campaign promises, misused revitalization funds, and poor follow-through.⁴ For decades it has been targeted for renewal, but hasn’t made any significant strides in that direction. The ‘Gateway Urban Renewal District’ was created in 2001. This made it possible to borrow money for public improvements in the area, repaying the borrowed money through increased tax revenue. The problem is very few area improvements have been the kind that lead to jobs, cash-flow, and tax revenue. Some of the improvements being implemented with the urban renewal money include a ‘children’s receiving center’ and an affordable housing development. Related developments include the green line light rail connection to Clackamas Town center, the parking garage, and Gateway Discovery Park.”

“Gateway remains decidedly suburban, with wide streets carrying traffic at speeds that preclude walking and biking. 102nd avenue has new trees and banners yet remains a fast-moving four-lane mishmash of aging strip malls, car lots and fast-food outlets” -Anna Griffin, The Oregonian

Site Context

"The Gateway area is made up of strip malls and housing. Immediately surrounding the site are a handful of small local businesses, a new public park, a few multi-unit residential centers, and a large amount of both single and multi-family housing. The area is lower income than most surrounding areas, has a high crime rate, and an average household size twice the Portland average.⁵ There is also a disproportionately high level of pavement; in the form of parking lots and roads. The shopping center itself is 42.4 acres. The biggest draws to the site are the Max light rail station and adjacent parking garage, the Fred Meyer, the Oregon Medical Clinic, and award winning Gateway Discovery Park which was opened in 2018 and lies just three blocks east of the site."

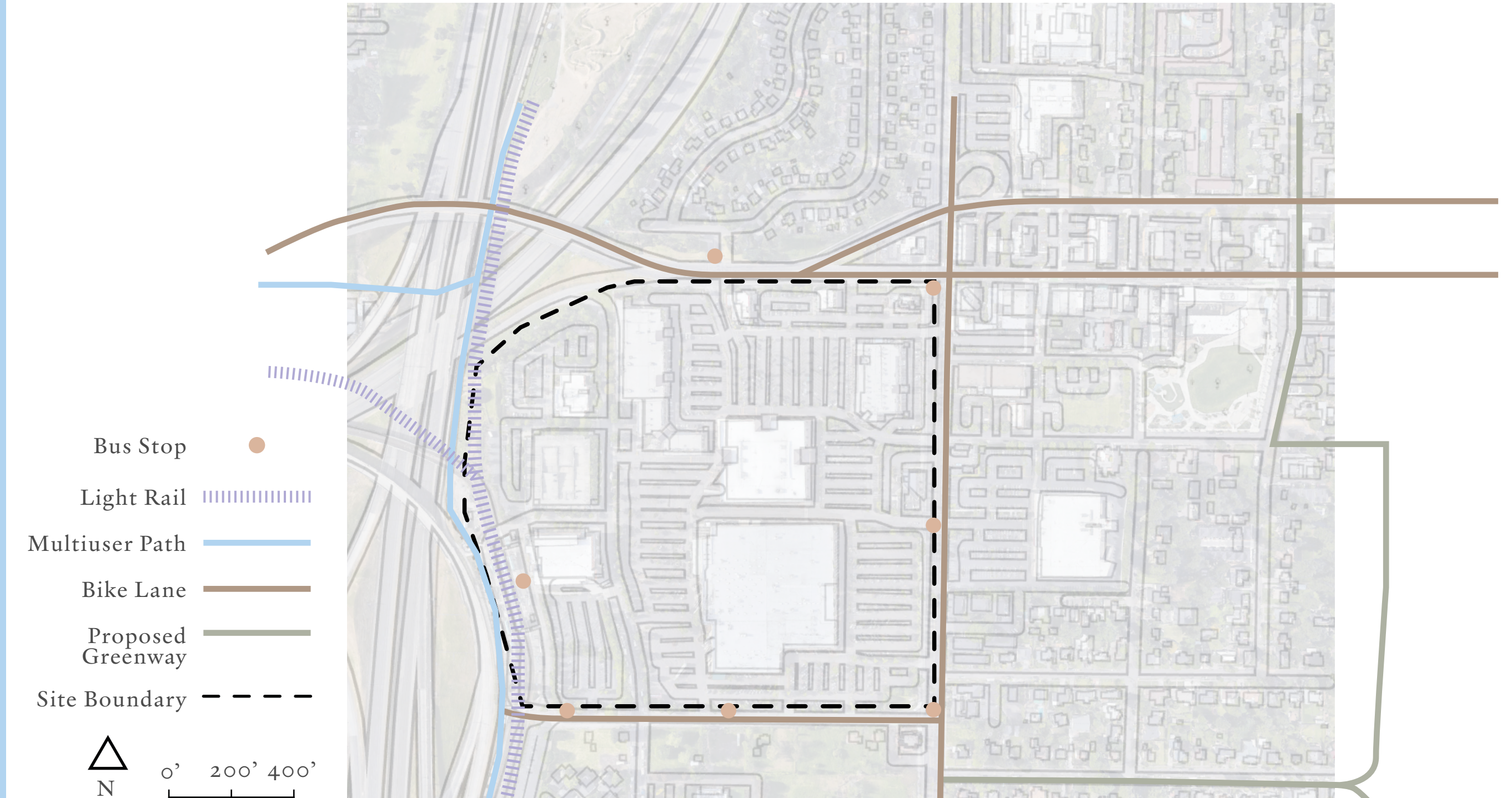


Site Analysis

Transit Connections

"Currently the mass-transit connections are comprised of the MAX light rail station and a series of bus stops at major intersections. There are bike lanes on the adjacent arterial streets and a multi-use path that runs 1.5 miles north to south along I-205. The multi-use path connects to 'Gateway Green', a nearby bike park currently under construction. As of yet there is no dedicated bike path which crosses I-84 to the neighborhoods west of the freeways and beyond. I will assume that in the time it takes for my design to be built the public transit systems and bikeways will have been built up enough to build a stronger multi-modal connection between Gateway and downtown Portland."

Site Analysis



The 15-Minute City

“One factor that has influenced my design is the concept of the ‘15-minute city’. Originally proposed by Carlos Moreno, the 15-minute city is a form of ‘chrono-urbanism’; thinking of cities in terms of time.⁶ Moreno proposes that quality of life is inversely proportional to time spent in transportation, hence the 15-minute city is a strategy for urban design which prioritizes the provision of all aspects of urban life within 15-minutes of non-car travel. Moreno identifies these essential urban social functions as: living, working, commerce, healthcare, education, and entertainment. I have provided space for all of these essential functions in my design.”

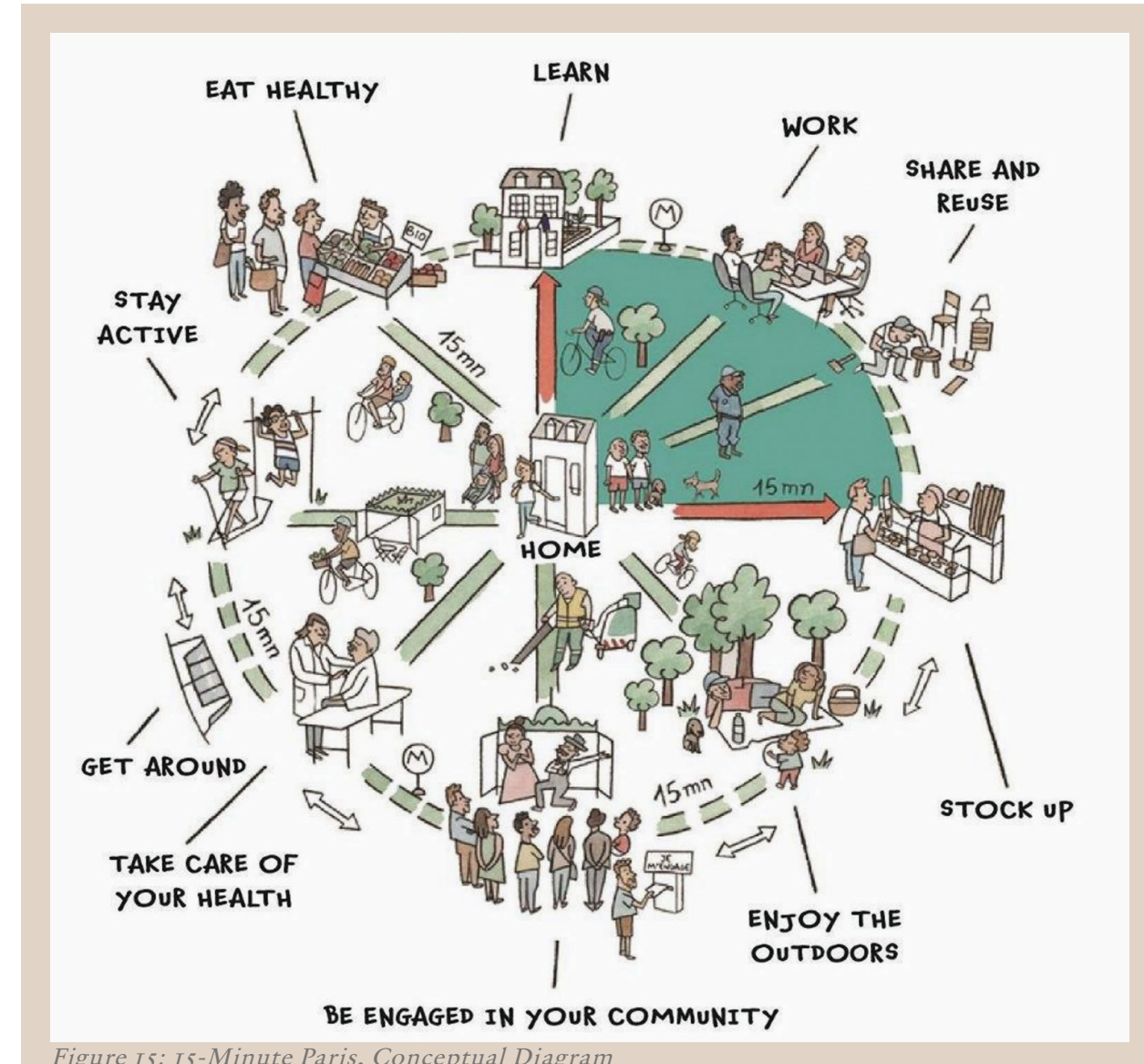


Figure 15: 15-Minute Paris, Conceptual Diagram

“Indeed, new chrono-urbanism must be at the heart of our roadmap for the years to come. And so, we must be creative and imagine, propose and build another pace of life, other ways of occupying urban space to transform its use, in order to access essential urban social functions. Undeniably, preserving our quality of life requires us to build other relationships between these two essential components of urban life: time and space.” - Carlos Moreno

Micro Vehicle Types

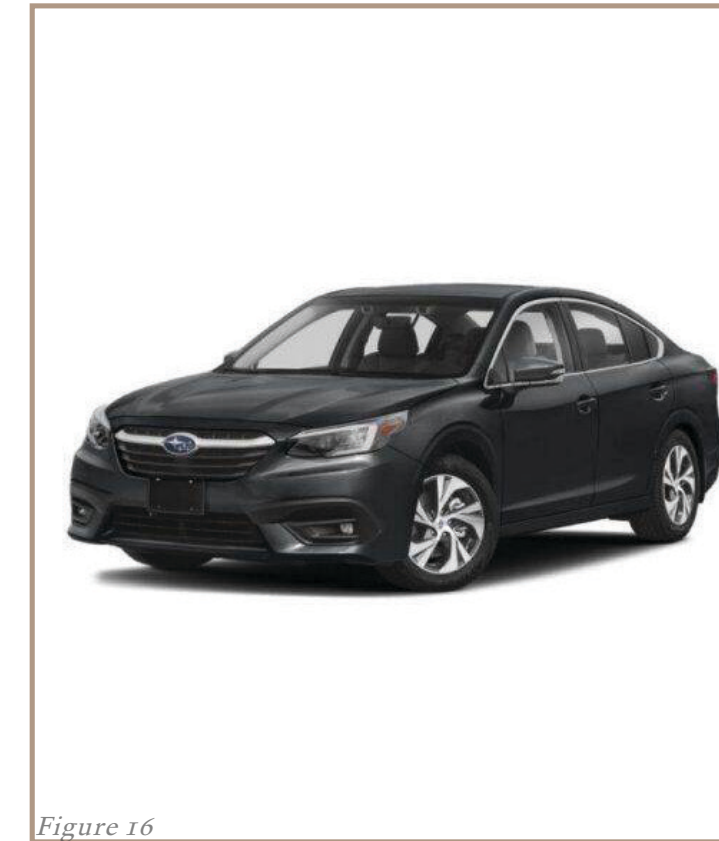


Figure 16

Legacy Vehicles

Greater than 1,100 lbs
6'x12' or larger
Top speed greater than 55 mph



Figure 17

Mini Vehicles

220 lbs - 1,100 lbs
Roughly 4'x6'
Top speed of 30 mph



Figures 18-20

Micro Vehicles

Less than 220 lbs
1.5'x6' or smaller
Top speed of 15-20 mph

“The Society of Automotive Engineers suggests three classes of vehicles: legacy vehicles, mini vehicles, and micro vehicles.⁷ Legacy vehicles are what we typically call ‘cars’; they are greater than 1,100 lbs, 6'x12' or larger, and have top speeds greater than 55 mph. Mini vehicles are 220-1,100 lbs, roughly 4' wide and 6' long, and have a top speed of 30 mph; a golf-cart for example. Micro vehicles are the smallest of the three types, weighing less than 220 lbs, smaller than 1.5' wide and 6' long, and have a top speed of 15-20 mph. Micro vehicles include things like traditional bicycles, scooters, and skateboards, as well as electrically powered or assisted vehicles like e-bikes, e-scooters, monowheels, onewheels, and hoverboards. My goals for this design necessitate that I make some considerations for necessary types of legacy and mini vehicles, but the forms of circulation I am prioritizing deal mostly with pedestrians and the many and diverse micro vehicles.”

Micro Vehicle Safety

"CDC takes dockless scooter safety in new study... While 94 percent of the 249 scooter-related cases were discharged without being admitted, the injuries were significant: Some 40.2 percent were admitted for head injuries, 31.7 percent for fractures and 27.7 percent with sprains, cuts or bruises." -USA Today

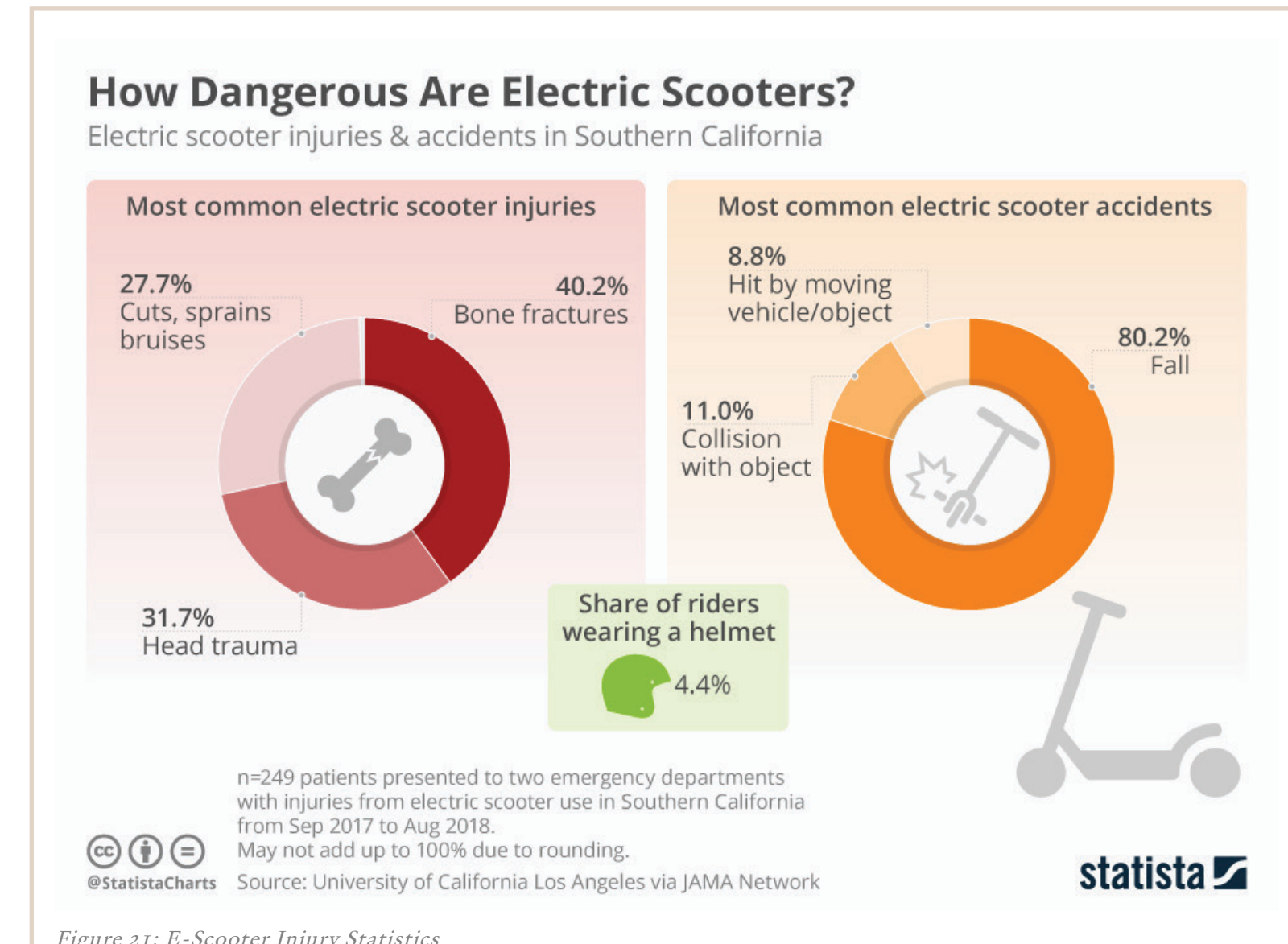


Figure 21: E-Scooter Injury Statistics

"The safety factor of legacy vehicles is based on air-bags, crumple zones, and more recently driver assistance features such as lane departure warnings and blind-spot monitors. In contrast, the evolving safety of micro vehicles is currently based on their small and light-weight design, stability, and lower top speeds. A CDC study found that 1/3 of e-scooter related ER visits happened during someone's first ever scooter ride and another third happened during the first 10 rides.⁸ Furthermore 50% of these victims blamed poor surfacing as the cause of their accident. Based on this study I have inferred that those who use micro vehicles regularly are at a much lower risk of injury. In order to further increase the safety of micro vehicle riders my design will prioritize smooth surfacing that isn't prone to potholes, regular path monitoring and maintenance, avoiding abrupt grade changes, and including softscape around micro vehicle paths wherever possible."



Figure 22: Smooth Bicycle Path

Traffic Regulation

"The future of micro vehicle development design and regulation is difficult to predict. Currently very few have speedometers, brake and turn signals, or headlights. One current approach to micro vehicle circulation in the landscape is deregulation. This approach offers paths and intersections that intentionally exclude micro vehicle traffic control elements and give the individual driver the responsibility for where and how to pilot the vehicle. If micro vehicles grow in numbers and begin to replace traditional vehicles as people's main vehicle of urban transportation, safety features and regulations will increase as well as the vehicles' top speed and acceleration. At the time that my speculative development might be built I theorize that micro vehicles will have more distinct classifications, and that speed limits, turning radii, and other safety standards and design rules will have been developed for each micro vehicle class. Consequently, my design adopts high levels of micro vehicle controls and traffic regulations. All micro vehicle paths include clear lane markings, speed limits, on-ramps and off-ramps, mount and dismount zones, stops, yields, and merges. I have not included any traffic lights in my design, but if pedestrian or micro vehicle traffic becomes too great for my design to function safely and efficiently, traffic lights can be installed at intersections and crosswalks. These might be controlled by sensors. I have designed these paths and intersections to prioritize the safety and efficient travel for both drivers and pedestrians."

Implementing

- Lane Markings
- Speed Limits
- On/Off-Ramps
- Mount/Dismount Zones
- Stops
- Yields
- Merges

Considering

- Traffic Lights
- Motion Sensors

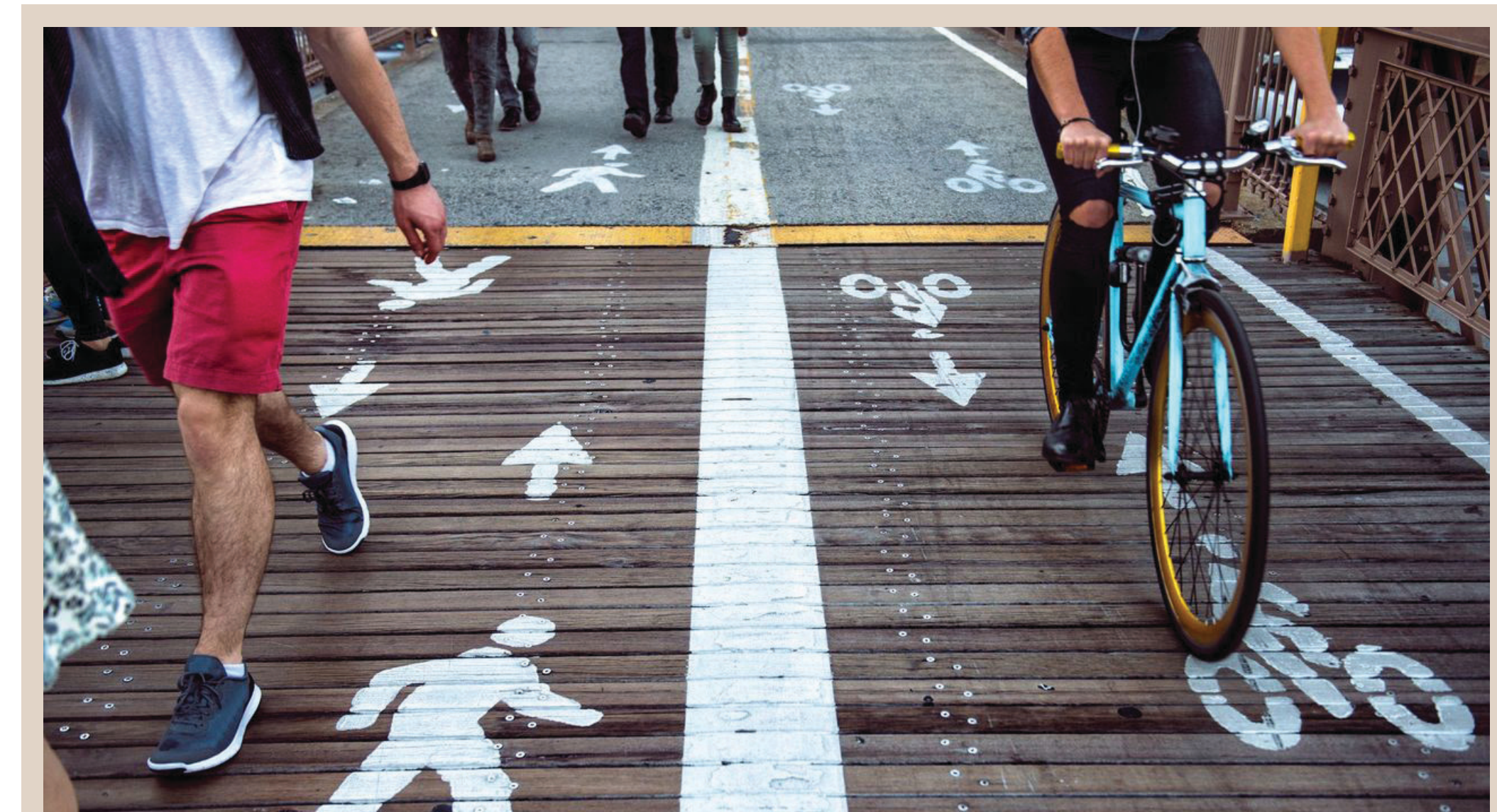


Figure 23: Separated Bicycle and Pedestrian Path

Landmarks

“Wayfinding in a dense mixed-use development can be difficult. Losing one’s way can be frustrating especially when commuting or trying to make an appointment in an unfamiliar area. A review of landmark-focused literature has shown that global landmarks can help the navigation efforts of those who are unfamiliar with the site provided they can be seen from multiple vantage points. Local landmarks can be helpful as well, but only to those familiar with the site.”



Figure 24: Historic Gateway Arch



Figure 25: Harriet Tubman Statue

Global Landmarks

- Can be seen from multiple places.
- Can be seen from afar.
- Helpful for those unfamiliar with the area.
- Examples include buildings, signs, trees, flags

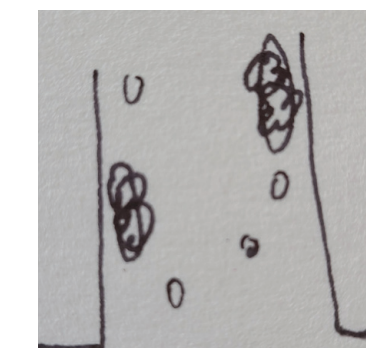
Local Landmarks

- Can only be seen when approached.
- Helpful for those familiar with the area.
- Examples include statues, fountains, cafes, refuges, patios

Circulation Typologies

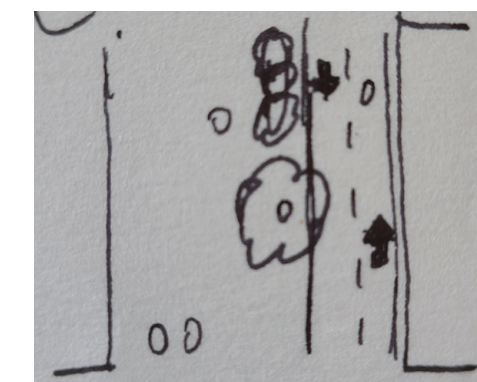
“I designed four different circulation typologies to bring users throughout the site as safely and efficiently as possible both on micro vehicle and on foot; I call them ‘Hop’, ‘Skip’, ‘Jump’, and ‘Leap’. The smallest of the four is ‘Hop’. This path is intended to be for pedestrians only and to weave between buildings. ‘Skip’ I originally envisioned for both micro vehicles and pedestrians but later revised it to only accommodate pedestrian traffic. This typology is a leisurely walk around the center of the site, flanked on one side by commercial businesses and on the other by green space. ‘Jump’ is intended to be the main thoroughfare through the site. Two ‘Jump’ paths bisect the site diagonally connecting the transit hub and parking lots to the rest of the district directly and efficiently. ‘Leap’ is a form of greenway. It accommodates both micro vehicles as well as pedestrians. It circles around the district edge and is mostly intended for recreation.”

“Hop”



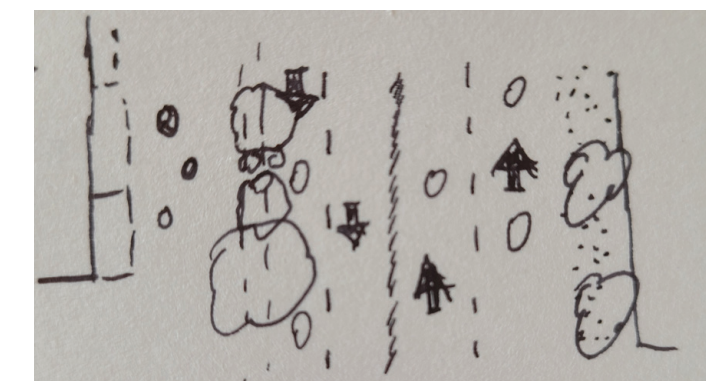
- “Capillary” form
- Smallest and most numerous
- Micro vehicles must dismount
- Pedestrian oriented
- Flexible activation space

“Skip”



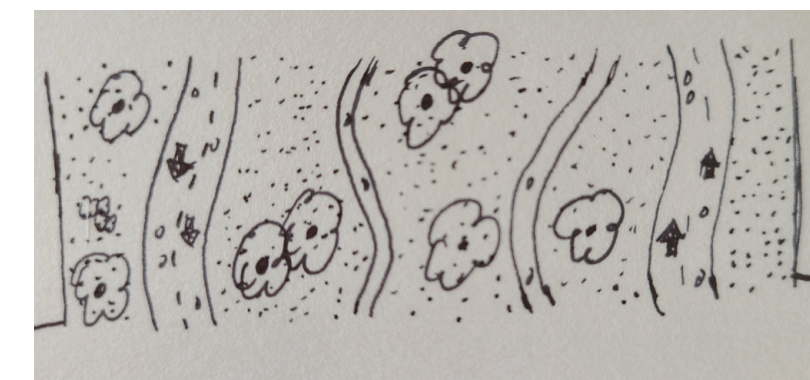
- Circular form
- Interspersed activation with seating, planting, etc.
- Micro vehicle path adjacent to pedestrians
- Revision: Pedestrian only, micro vehicles must dismount
- Mix of commercial use and “community” spaces (plazas, courtyards, seating)

“Jump”



- Straight form
- Majority hardscape
- Lined with commercial
- Space for storefront activation and seating
- Micro vehicles adjacent to pedestrians but physically separated
- Major thoroughfare bringing traffic through district core

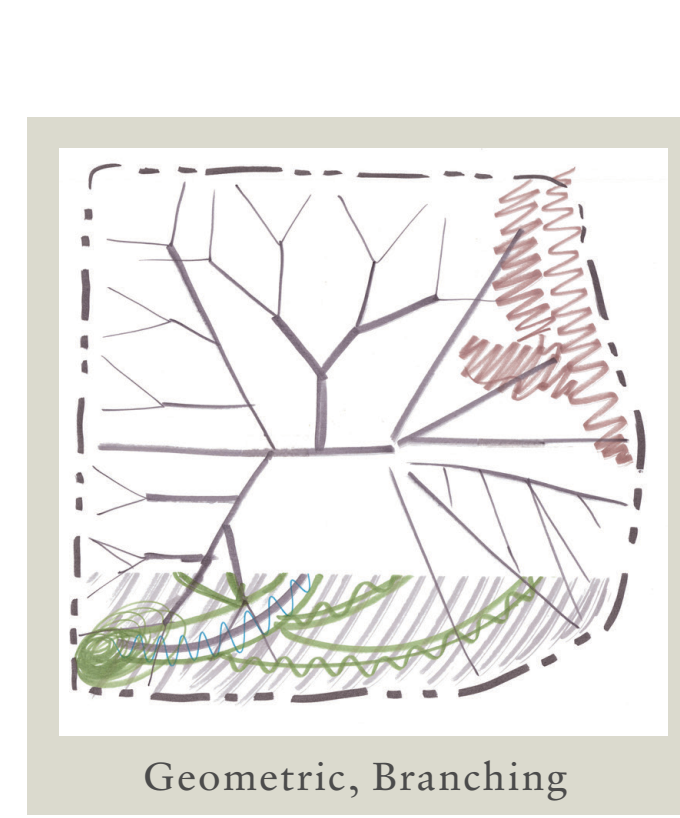
“Leap”



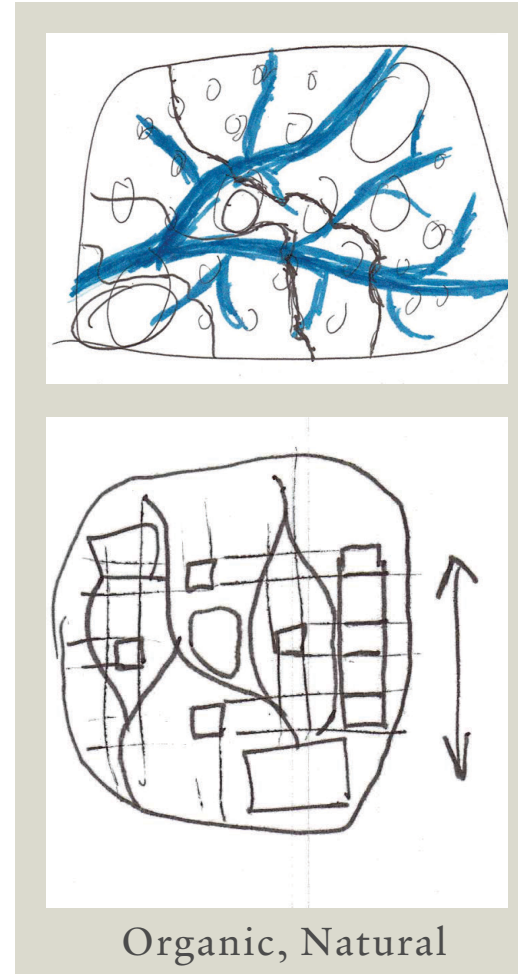
- Flexible form
- Majority softscape
- Winding corridor activated with green space
- Microvehicle paths removed from pedestrians
- Circular travel around district edge
- Offshoots lead to district core

Parti Diagrams

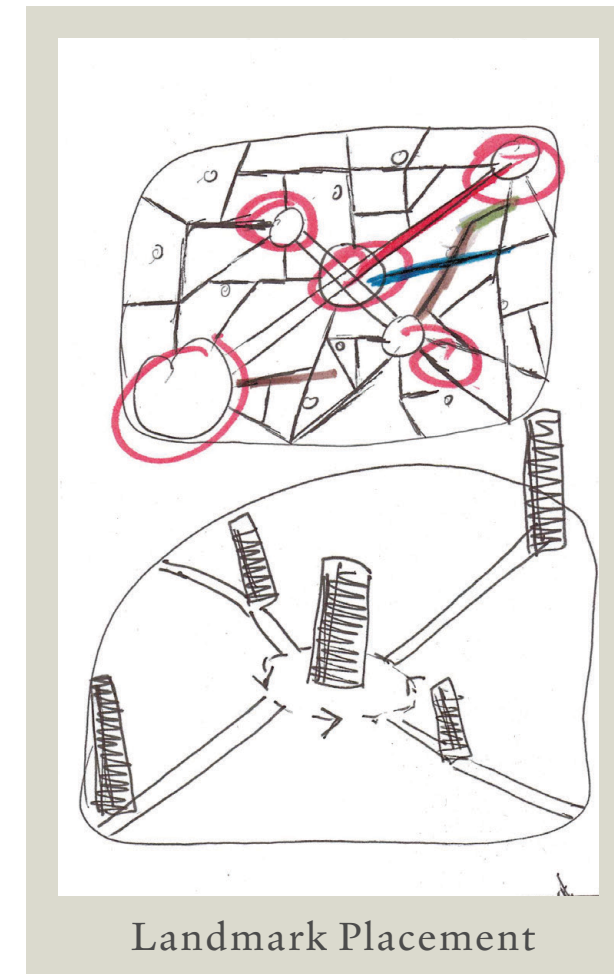
"I began the design process by creating parti diagrams to try and determine the structure of my design. I tried many different designs, some organic and curvilinear and others straight and geometric. The geometric, grid-like patterns proved to be strongest in terms of efficiency and path hierarchy, but they tend to be more oppressive and uninteresting. Furthermore, I wanted to take advantage of the lack of legacy vehicles by departing from the grid structure of traditional city streets. The organic curvilinear designs gave the site an aspect of discovery and adventure that would benefit the pedestrian site users, but they made navigation and circulation design less intuitive and made global landmark viewsheds impossible to integrate into the design."



Geometric, Branching



Organic, Natural



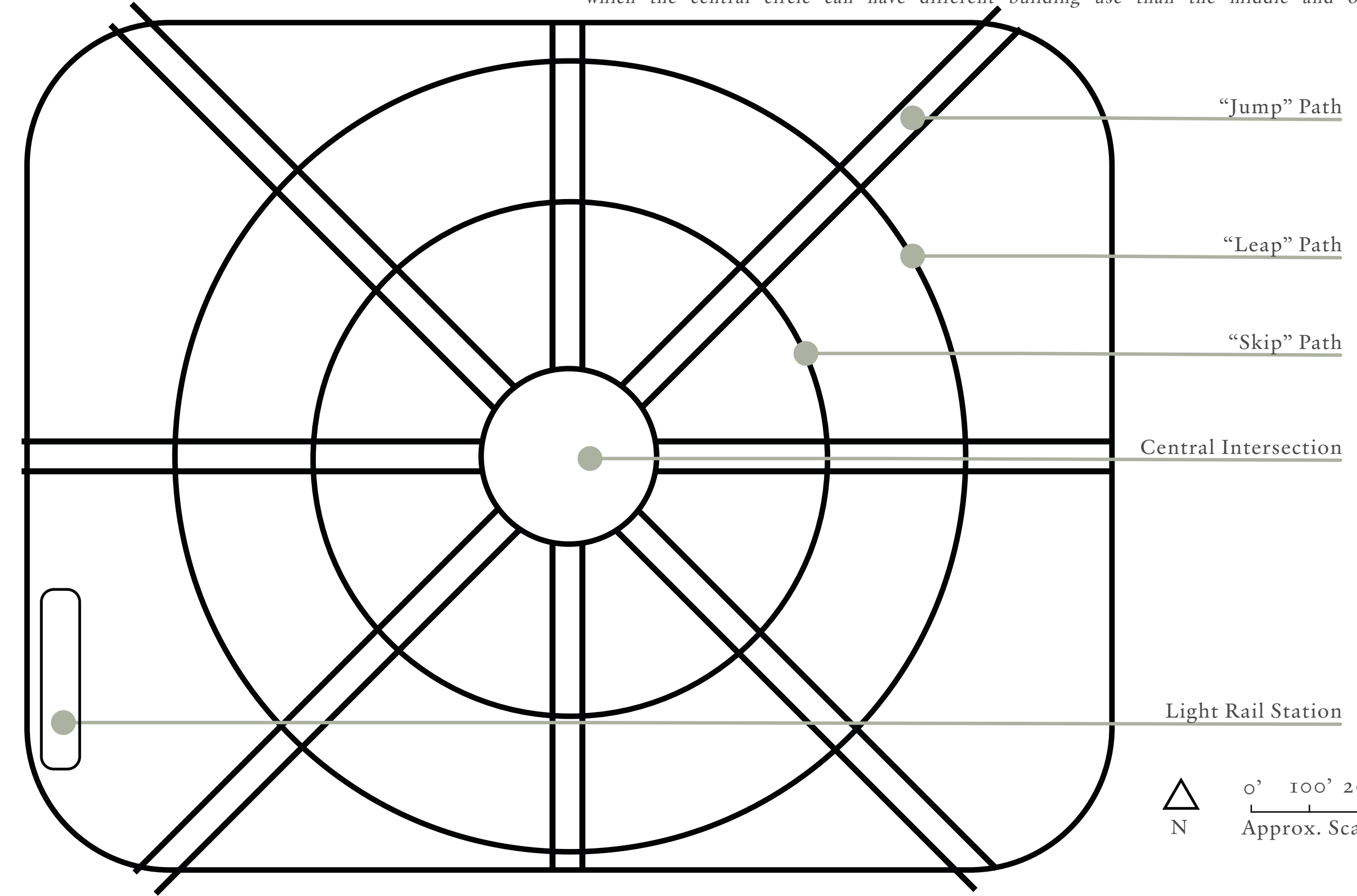
Landmark Placement



Curvilinear

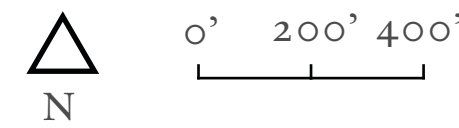
Selected Parti

"Ultimately I decided on this parti diagram which is a combination of geometric and curvilinear elements. The straight lines running through the center in combination with the concentric circles represent circulation and allow relatively direct travel through the site. They also create viewsheds to global landmarks which can be installed in the center and the four corners of the site. The concentric circles also create a hierarchy of spaces in which the central circle can have different building use than the middle and outer circles."



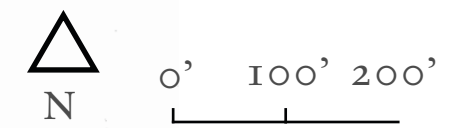
Masterplan: Iteration 1

“This is the first iteration of a site masterplan in which I started to layout the circulation, parking, and experimented with building shapes and sizes. The ‘Jump’ paths start and end at the corners of the site and intersect in the center. They connect the parking lots in the corners with the transportation hub, and bring the foot and micro vehicle traffic through the center of the site and past the commercial buildings lining the path. The ‘Leap’ paths circle along the outside of the site and like the ‘Jump’ paths intersect at the center of the site. The rectangular buildings interacting with circular paths create spaces for plazas, playgrounds, patios, etc.”



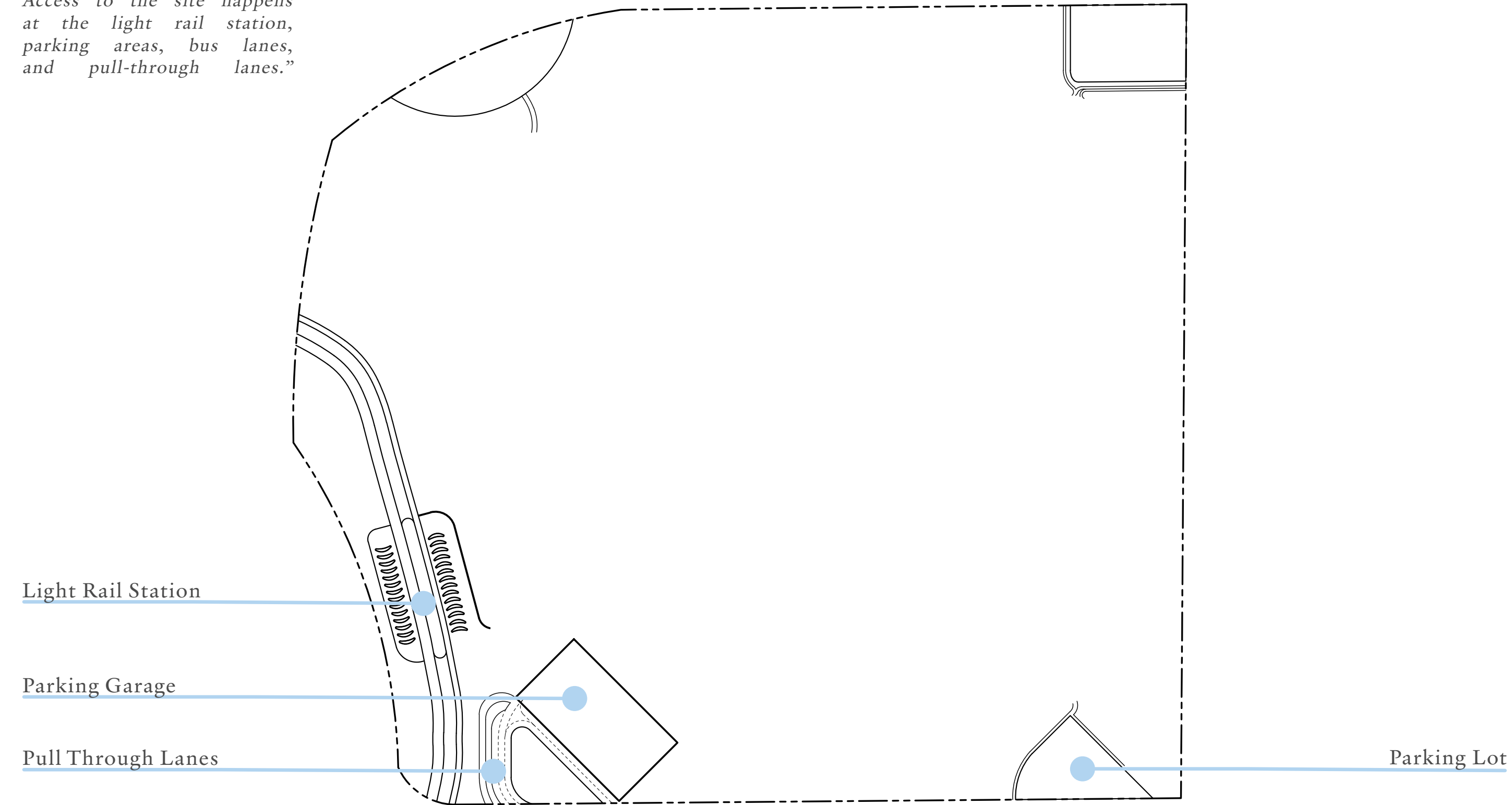
Masterplan: Iteration 2

“In this second masterplan iteration I gave actual scale to the site elements. The buildings in the central circle of the site vary in size and shape. They represent education and entertainment building types. A large amphitheater is also included in the central circle. The commercial buildings are shown as 30' wide strips along one side of the ‘Jump’ paths. The outer ring includes apartment buildings, row houses, a Fred Meyer, and a parking garage. The apartment buildings are all roughly 20,000 square feet, similar to those in downtown Portland. The rowhouses are each 20'x50'. They are built along the ‘Leap’ path and include space for a small back yard. In this iteration most of the empty space represents green area; parks, greenways, playgrounds, etc.”



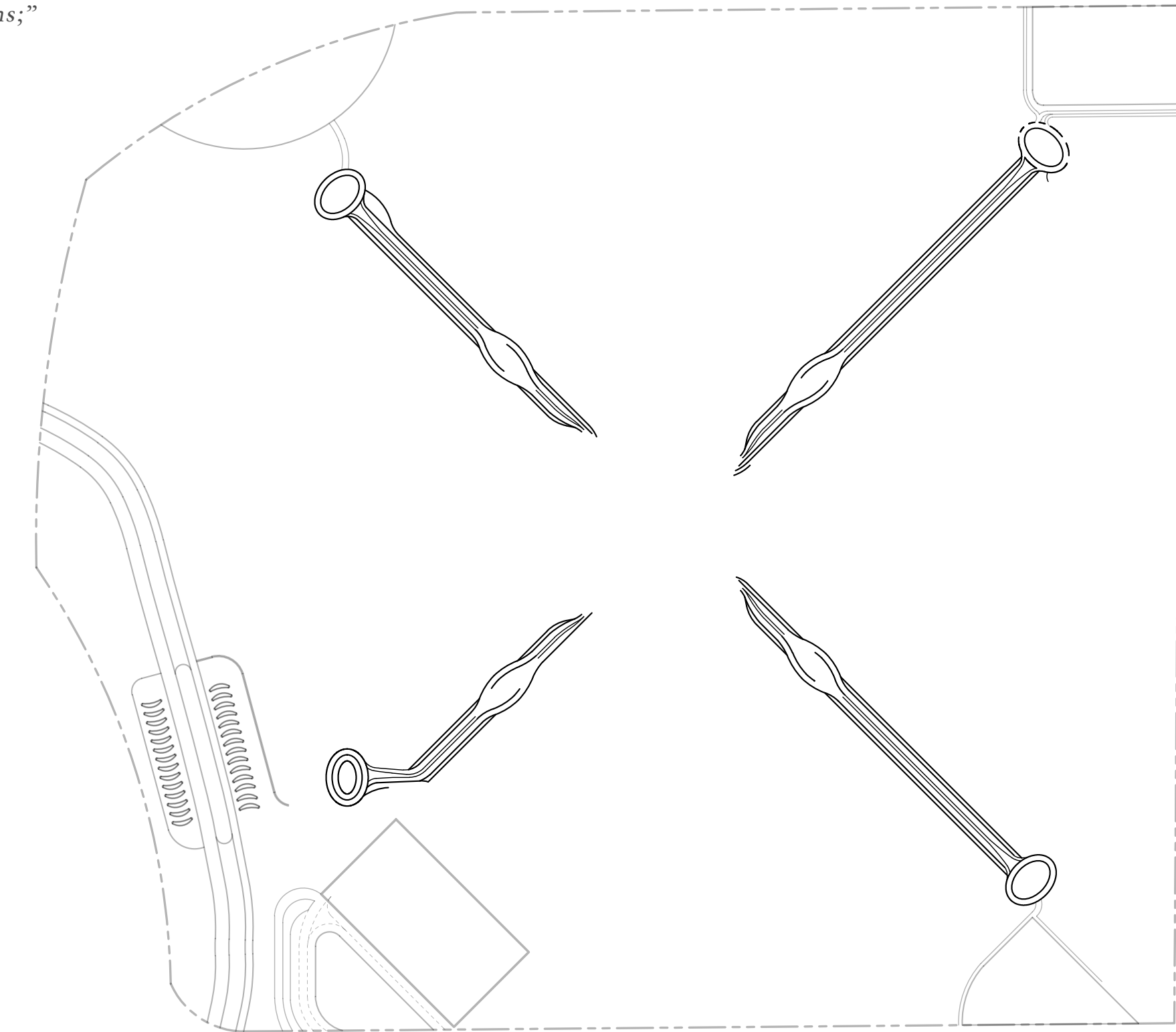
Entrances

"I drafted the final iteration of my masterplan in AutoCAD. Access to the site happens at the light rail station, parking areas, bus lanes, and pull-through lanes."



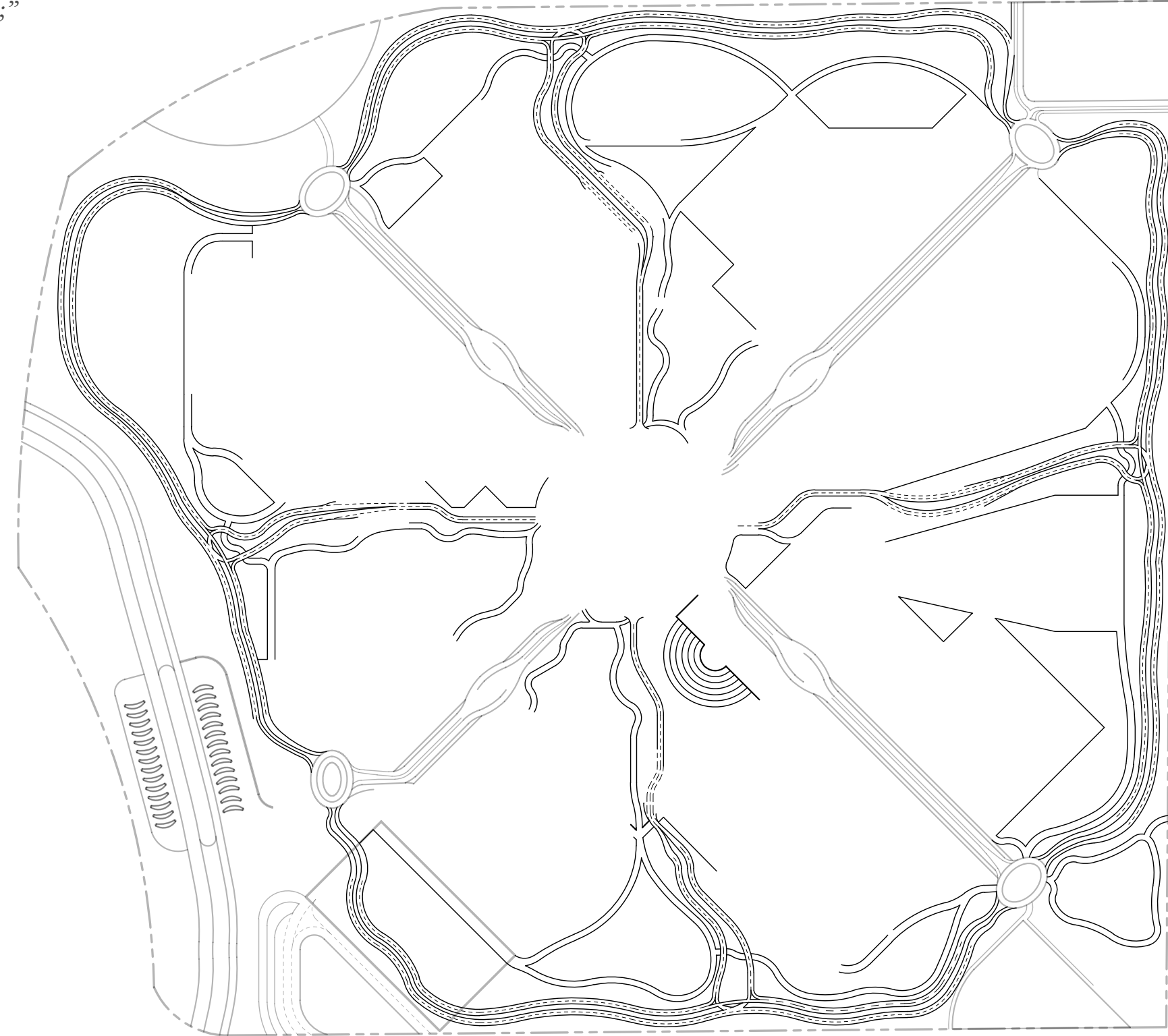
“Jump” Paths

"From here users can move toward the center of the district via the 'Jump' paths;"



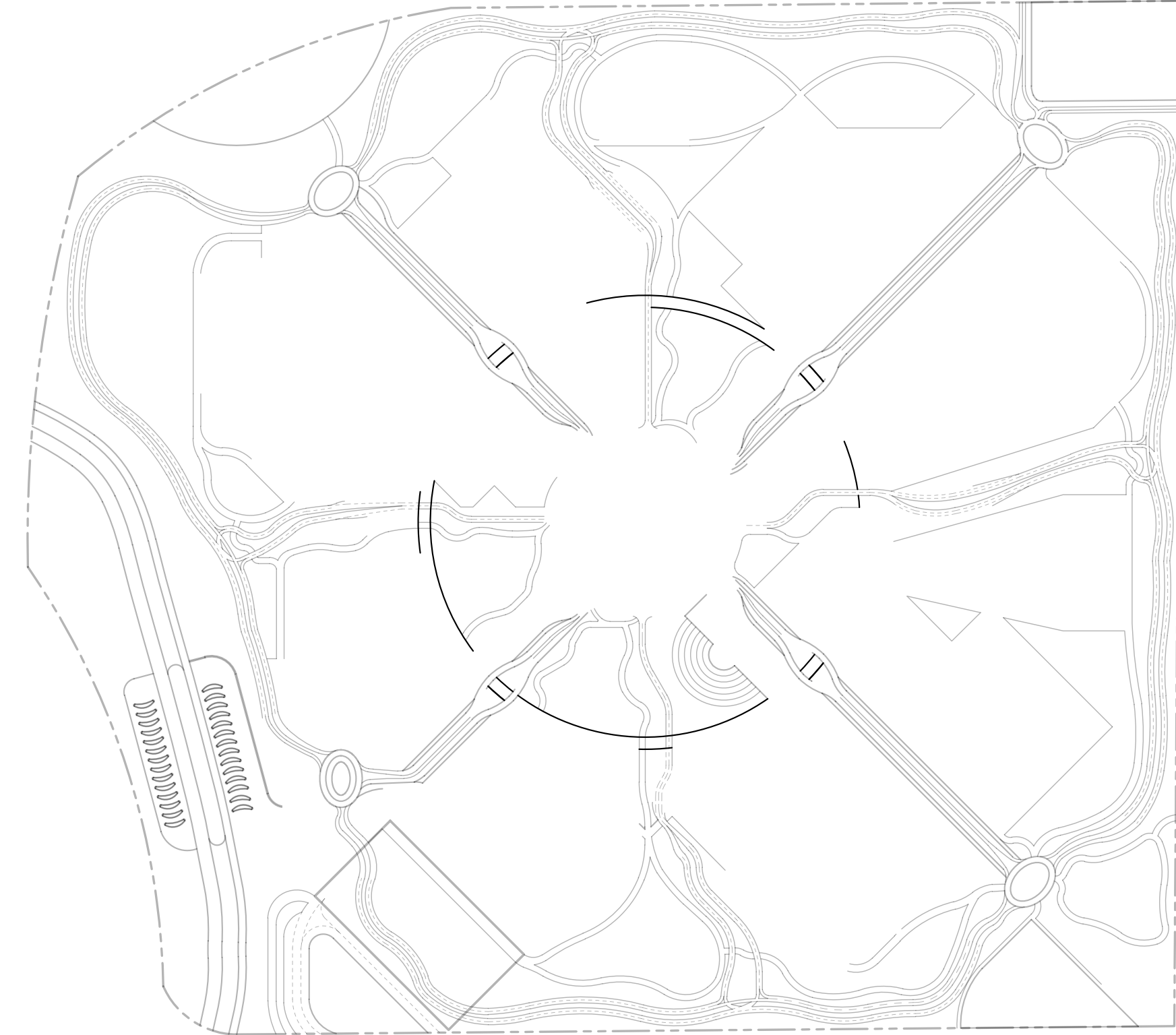
“Leap” Paths

“Leap’ paths circulate along the edge of the property and reach to the site core;”



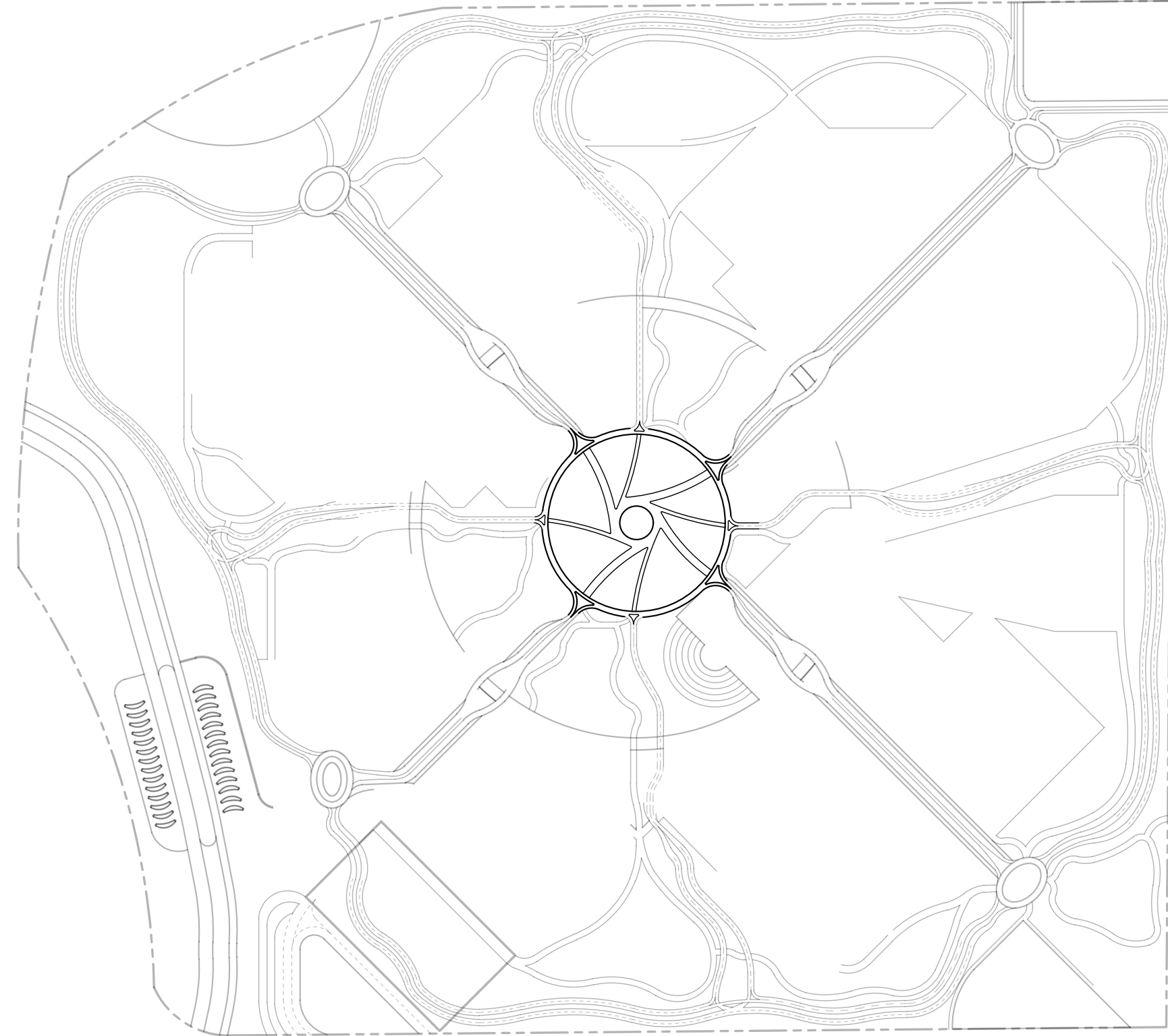
“Skip” Paths

“and the ‘Skip’ path creates a central ring.”



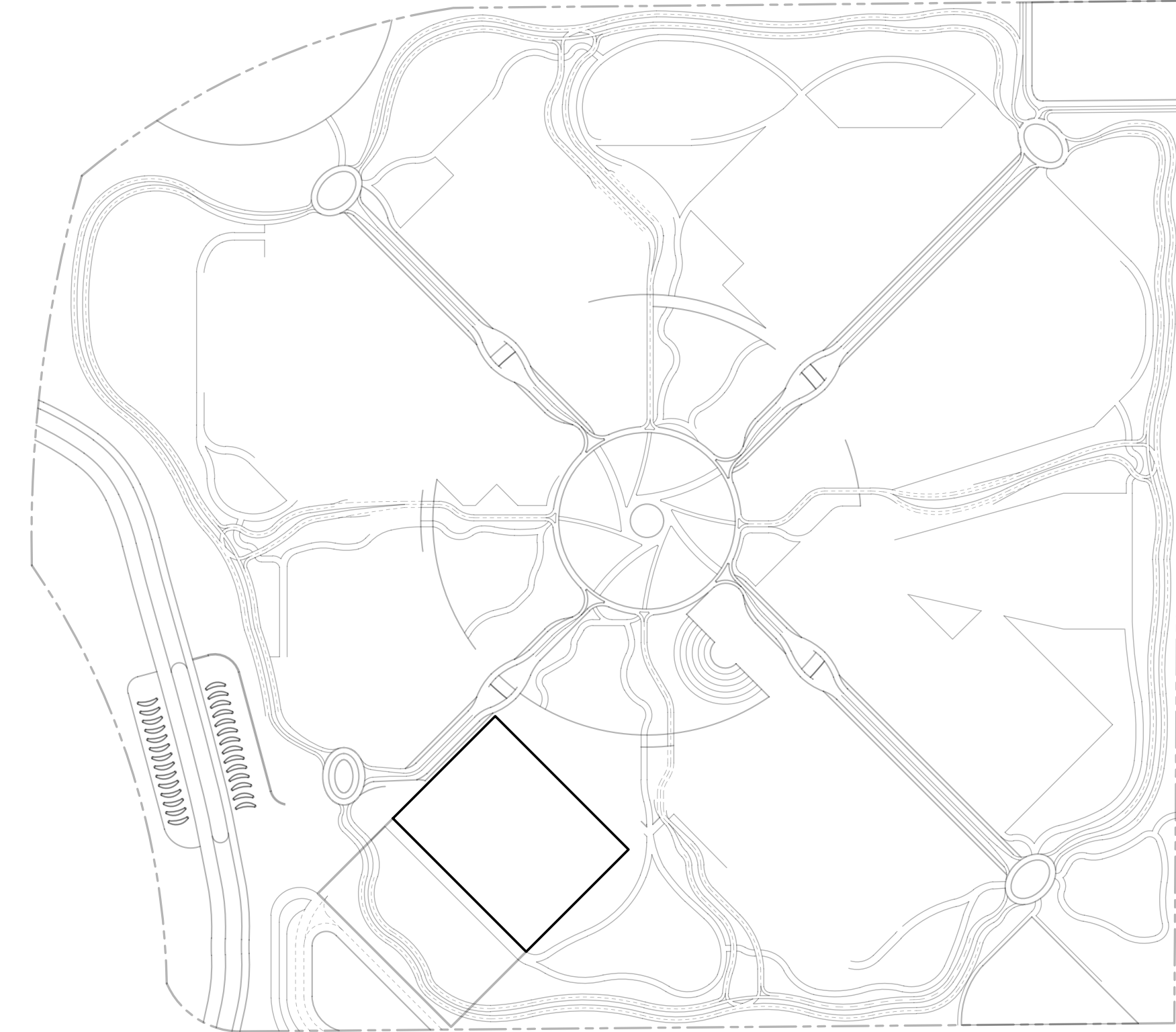
Central Roundabout

“At the site center is a large roundabout and park.”



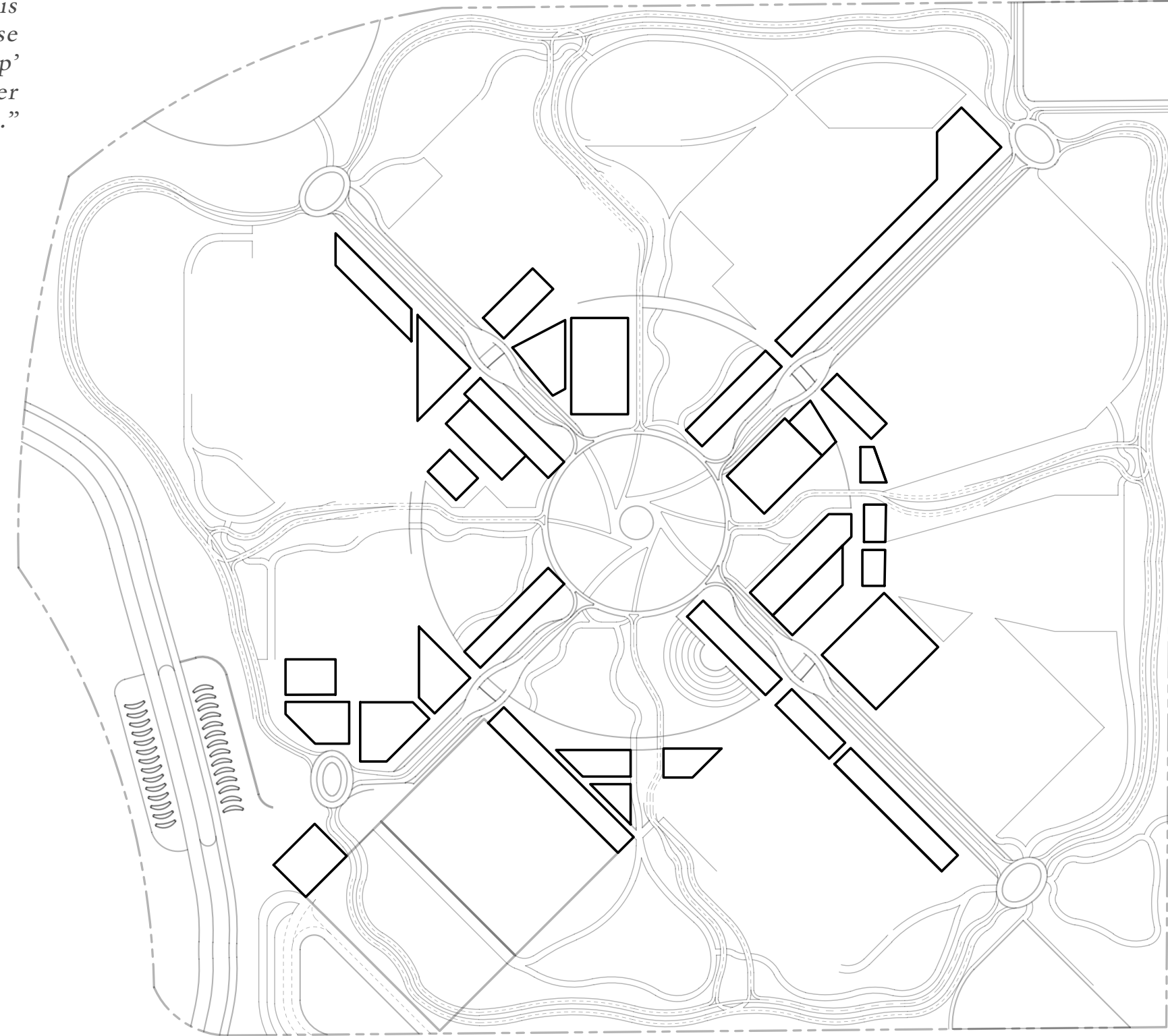
Grocery & Medical

“The largest building houses Fred Meyer and the Oregon Medical Clinic.”



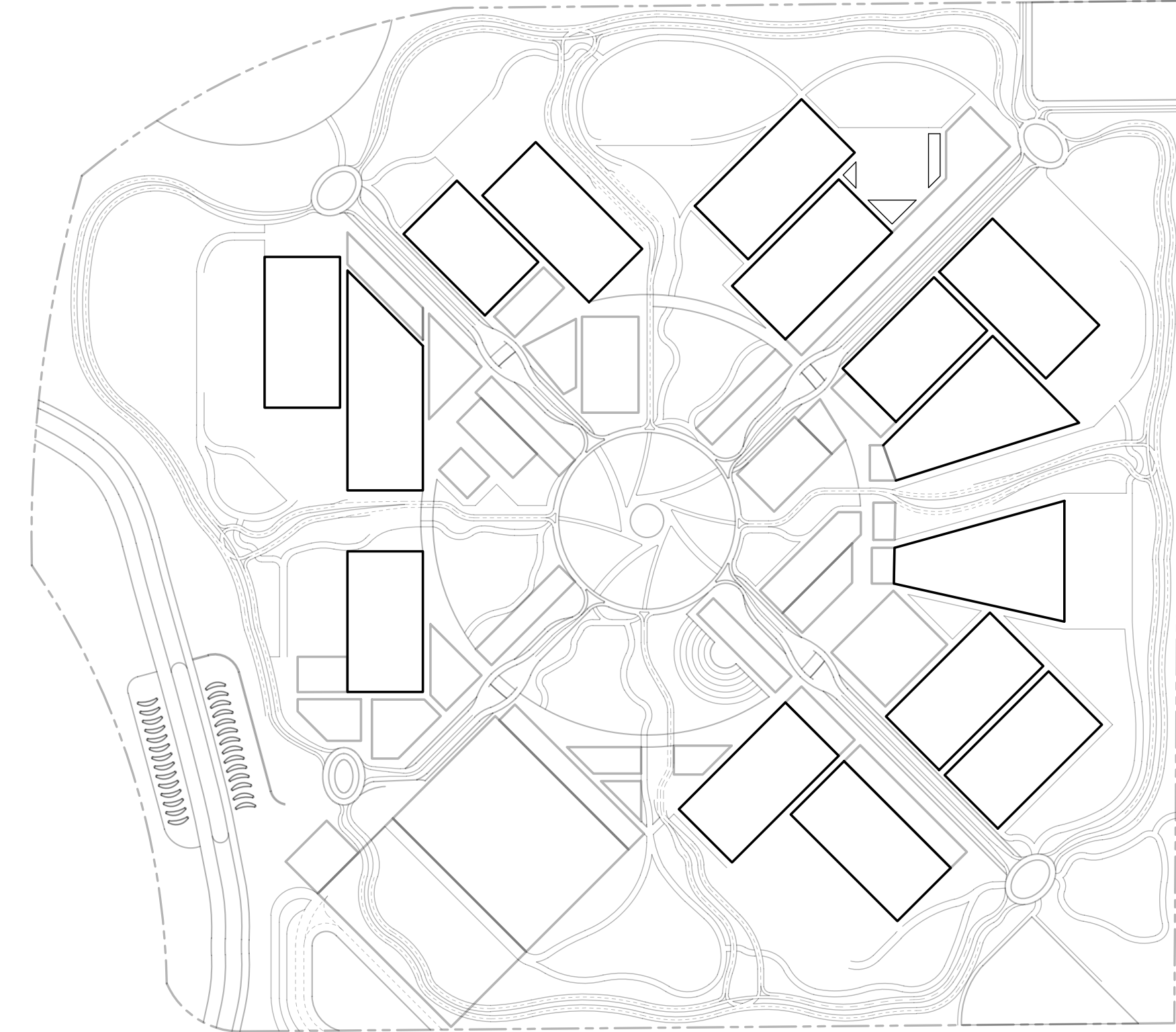
Mixed Use Commercial

“Building use is laid out in rings radiating from the center. The first layer is mixed use commercial. These buildings line the ‘Jump’ and ‘Skip’ paths, and cluster around the transit hub.”



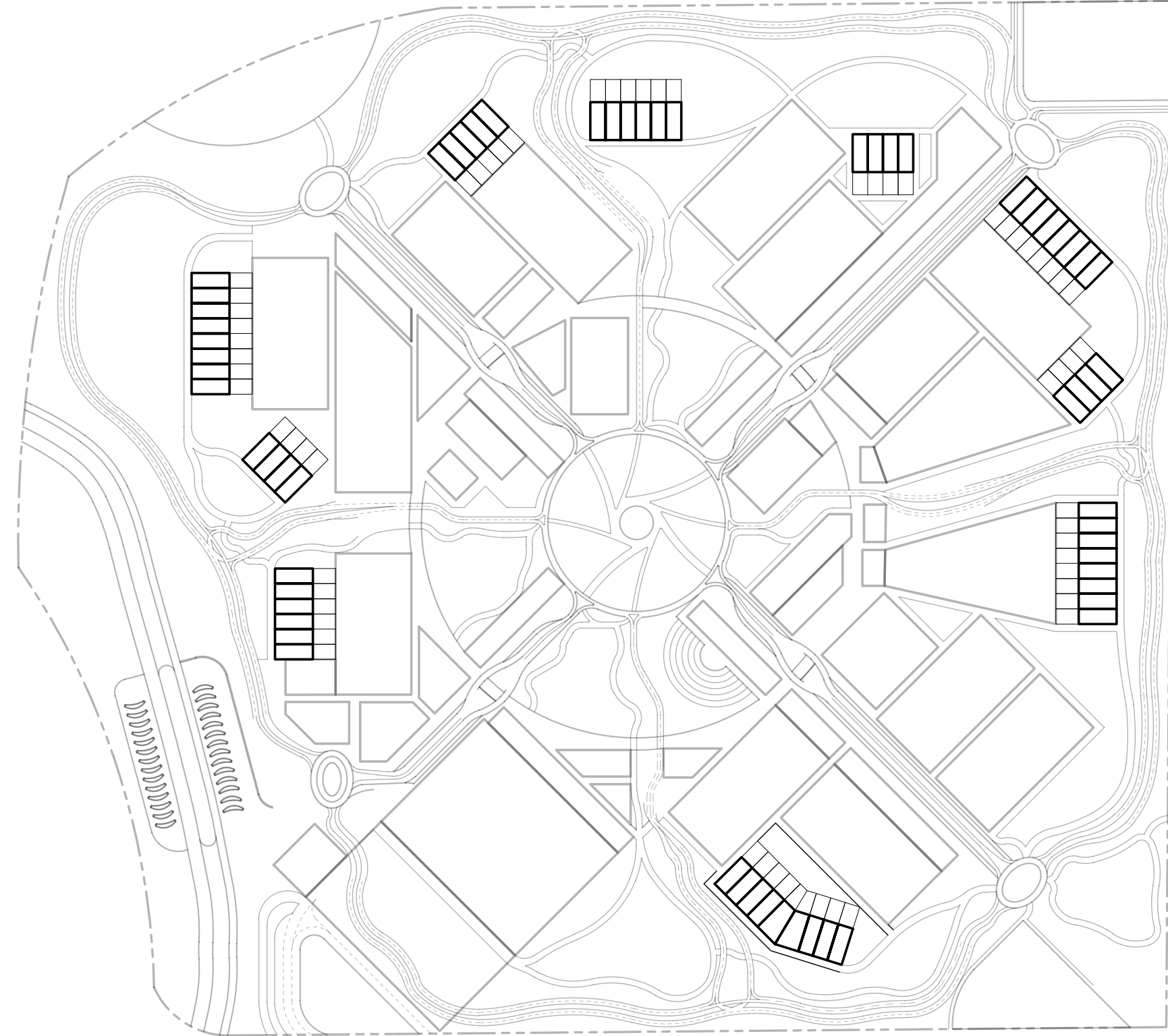
Apartments

“The next layer is made up of apartment buildings.”



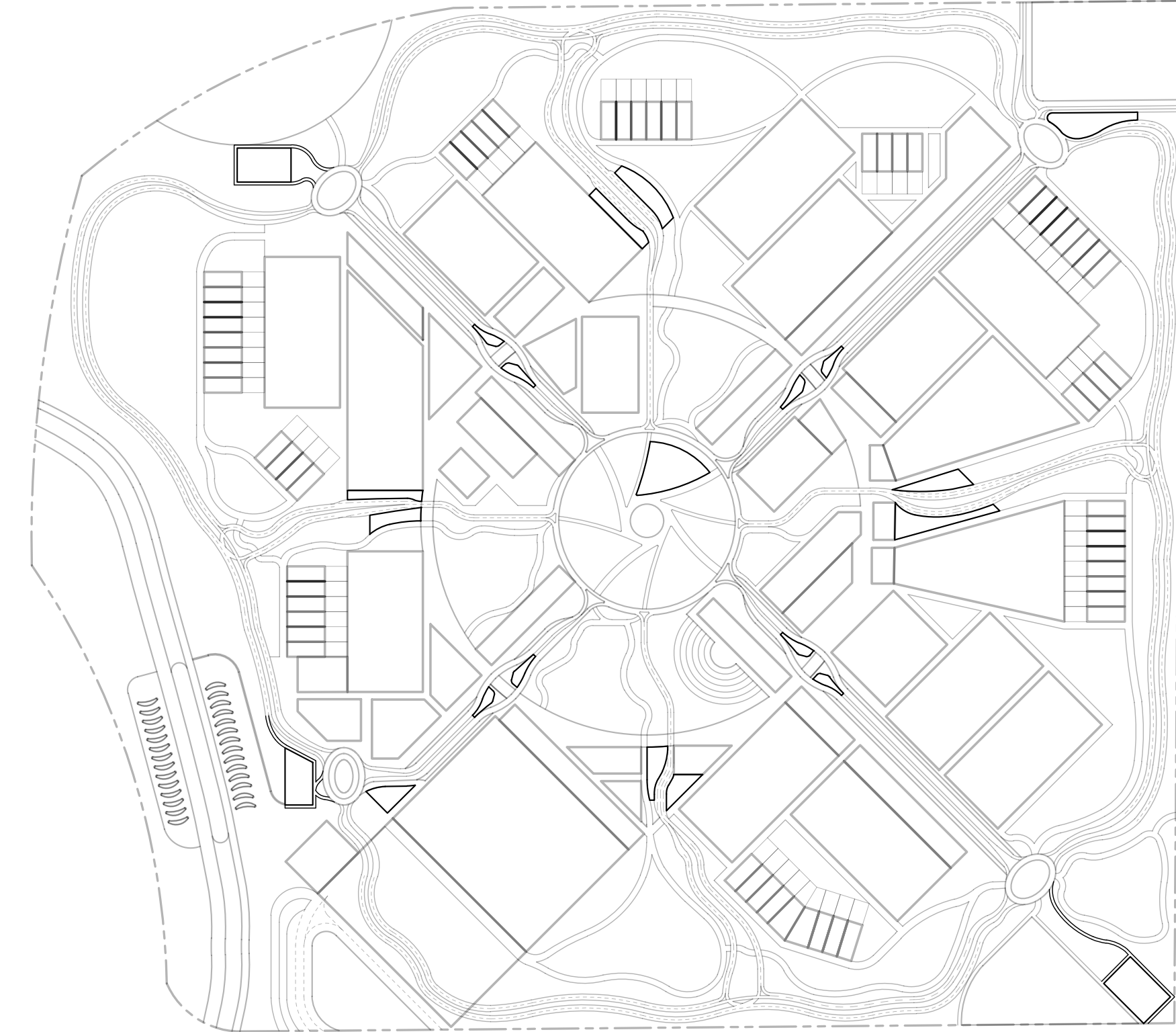
Townhomes

“The outermost layer of townhomes are arranged along the ‘Leap’ paths.”



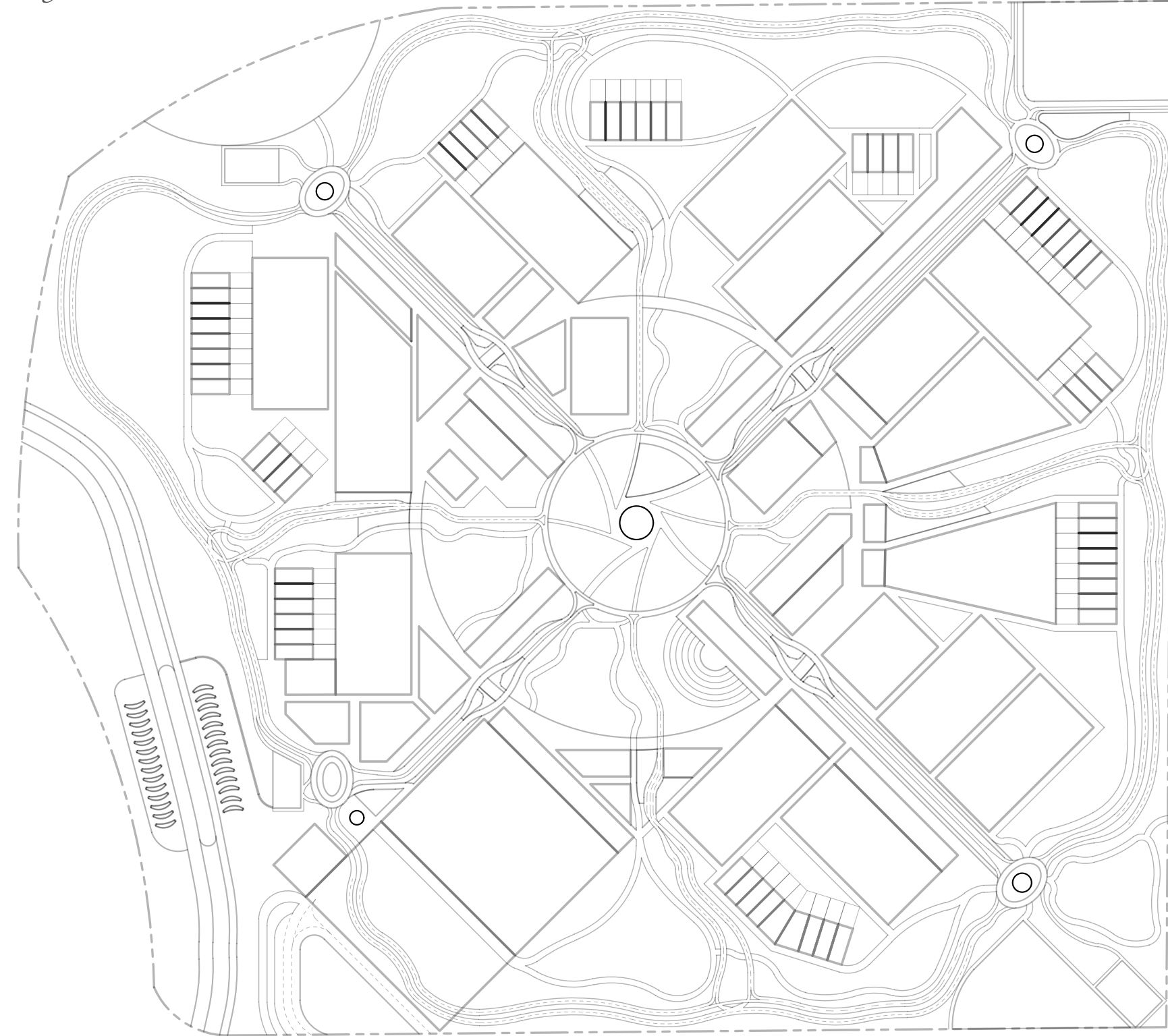
E-Lockers

“E-Lockers’ are located all throughout the site and include adjacent mount and dismount zones.”



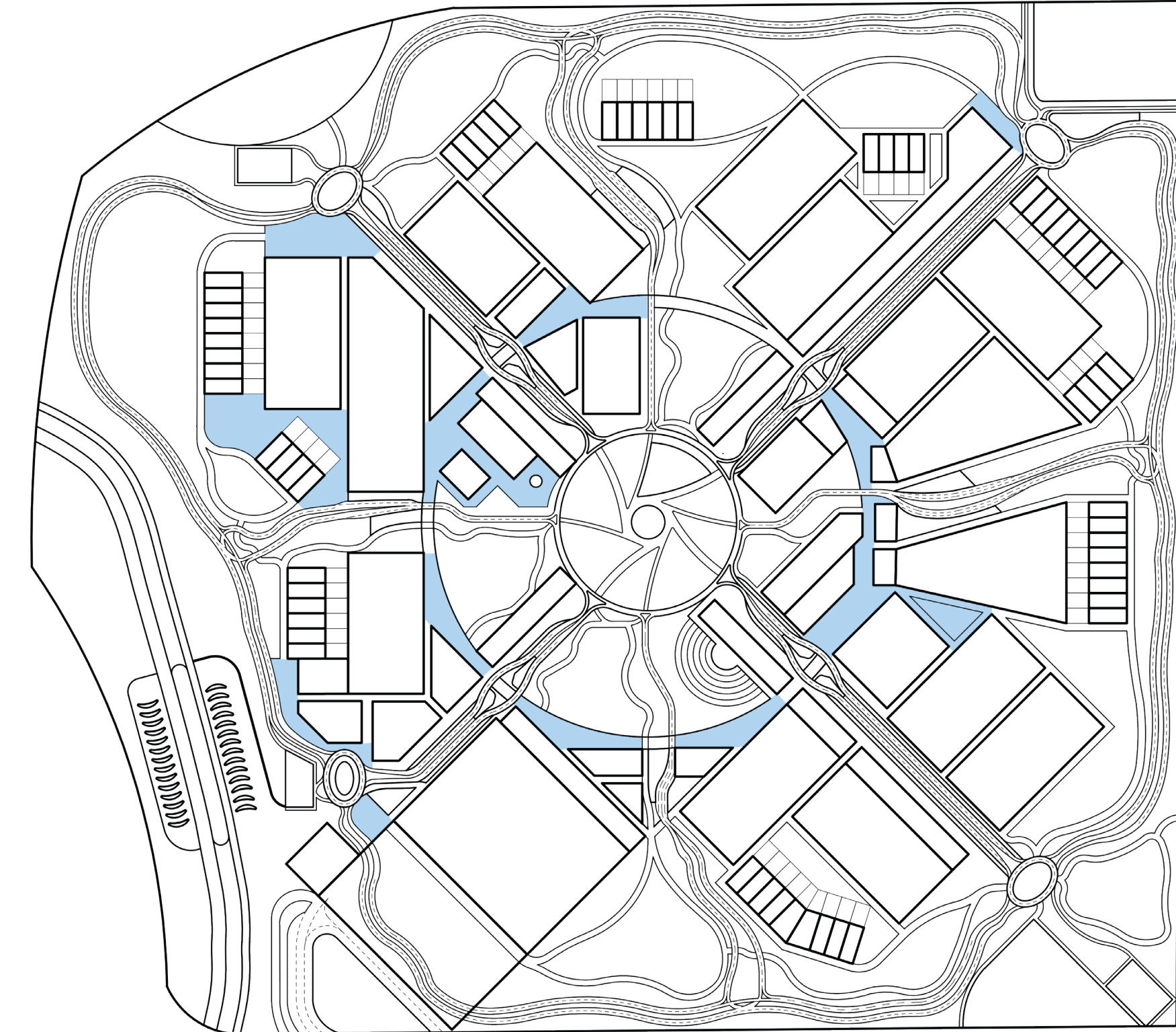
Landmarks

“The five global landmarks are shown here, one in each corner of the site and a large central tower.”



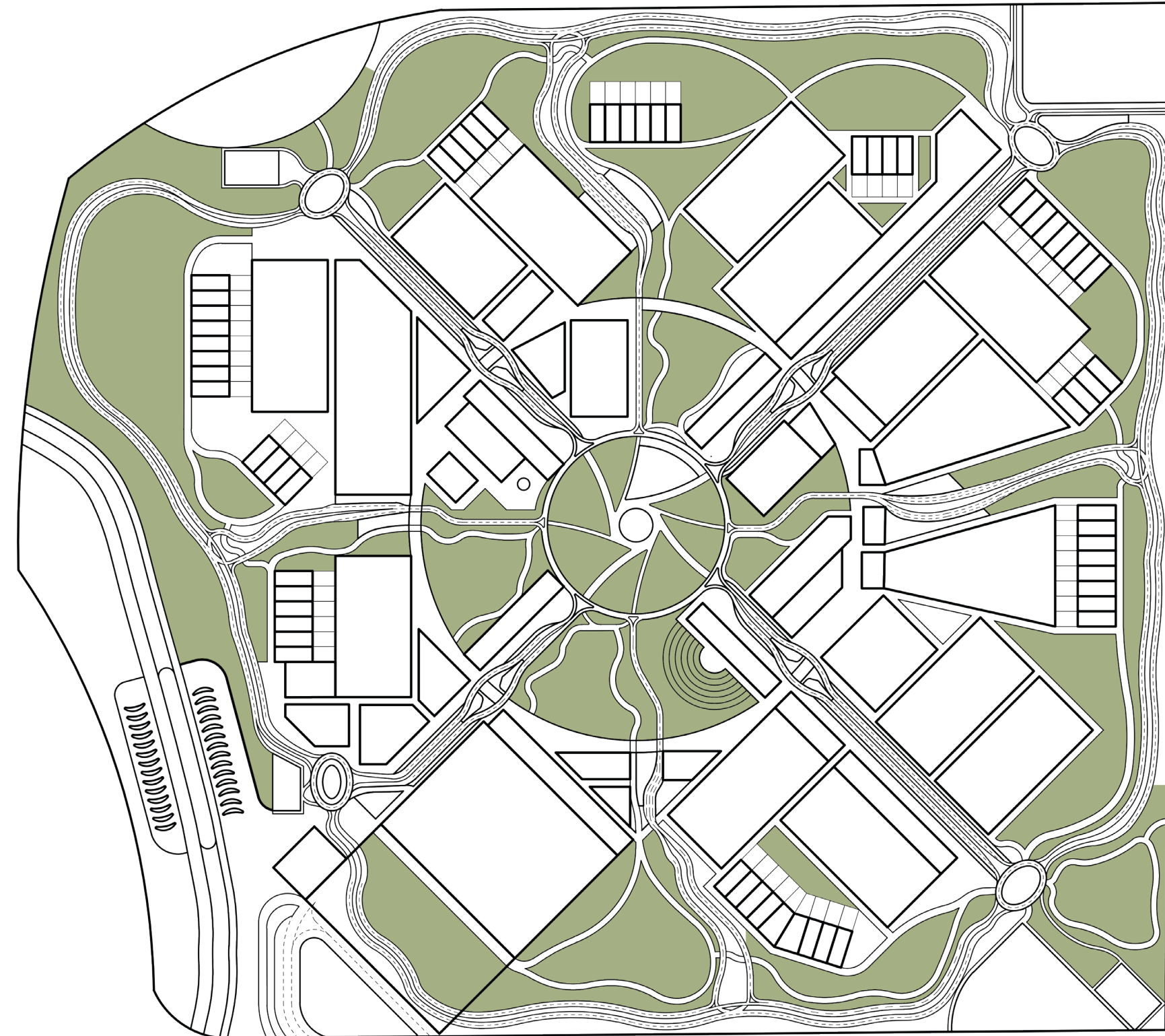
Community Space

“I have left other design elements ambiguous such as how to utilize the numerous plazas...”



Open Space

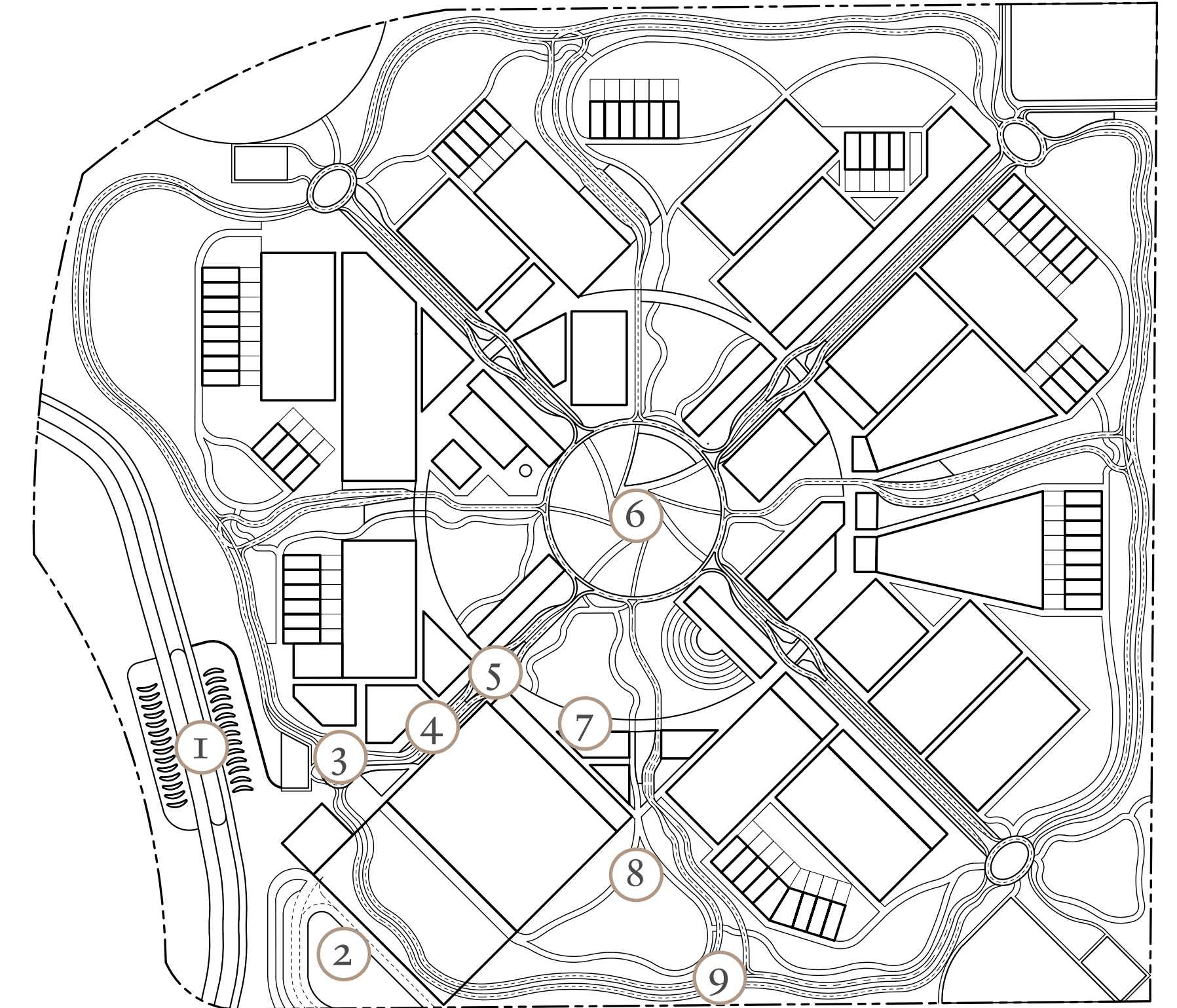
“...and open space.”



Focus Areas

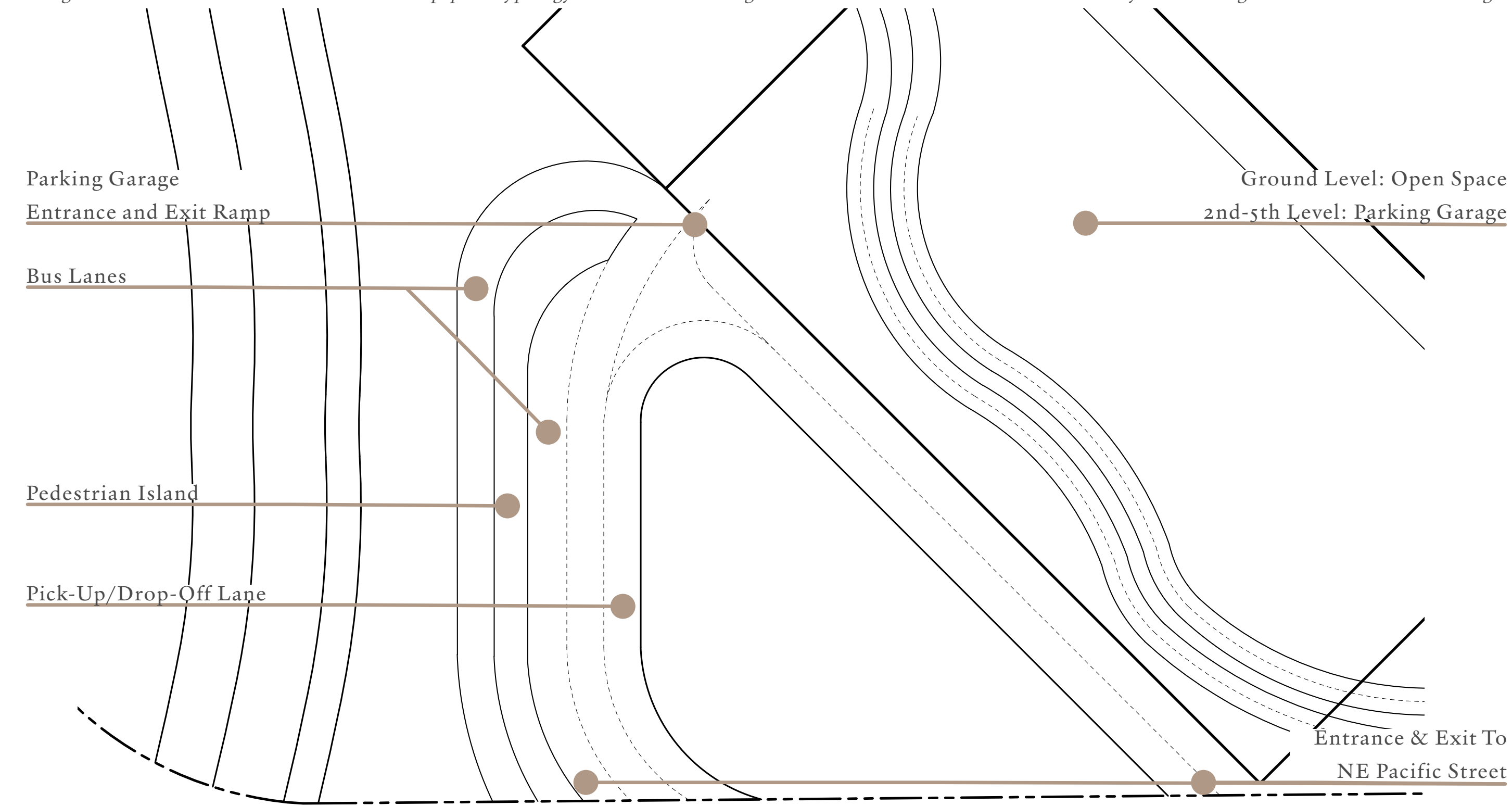
“After completing my masterplan I selected some of the more critical elements of my design to think through in more detail. These elements include the two pieces that make up the transit Hub; the pull through lanes and the light rail station, the three larger path typologies, and the intersections of these paths.”

- ① Light Rail Station
- ② Pull Through Lanes
- ③ Jump-Leap Intersection
- ④ Jump Typology
- ⑤ Skip-Jump Intersection
- ⑥ Central Roundabout
- ⑦ Skip Typology
- ⑧ Leap Typology
- ⑨ Leap-Leap Intersection

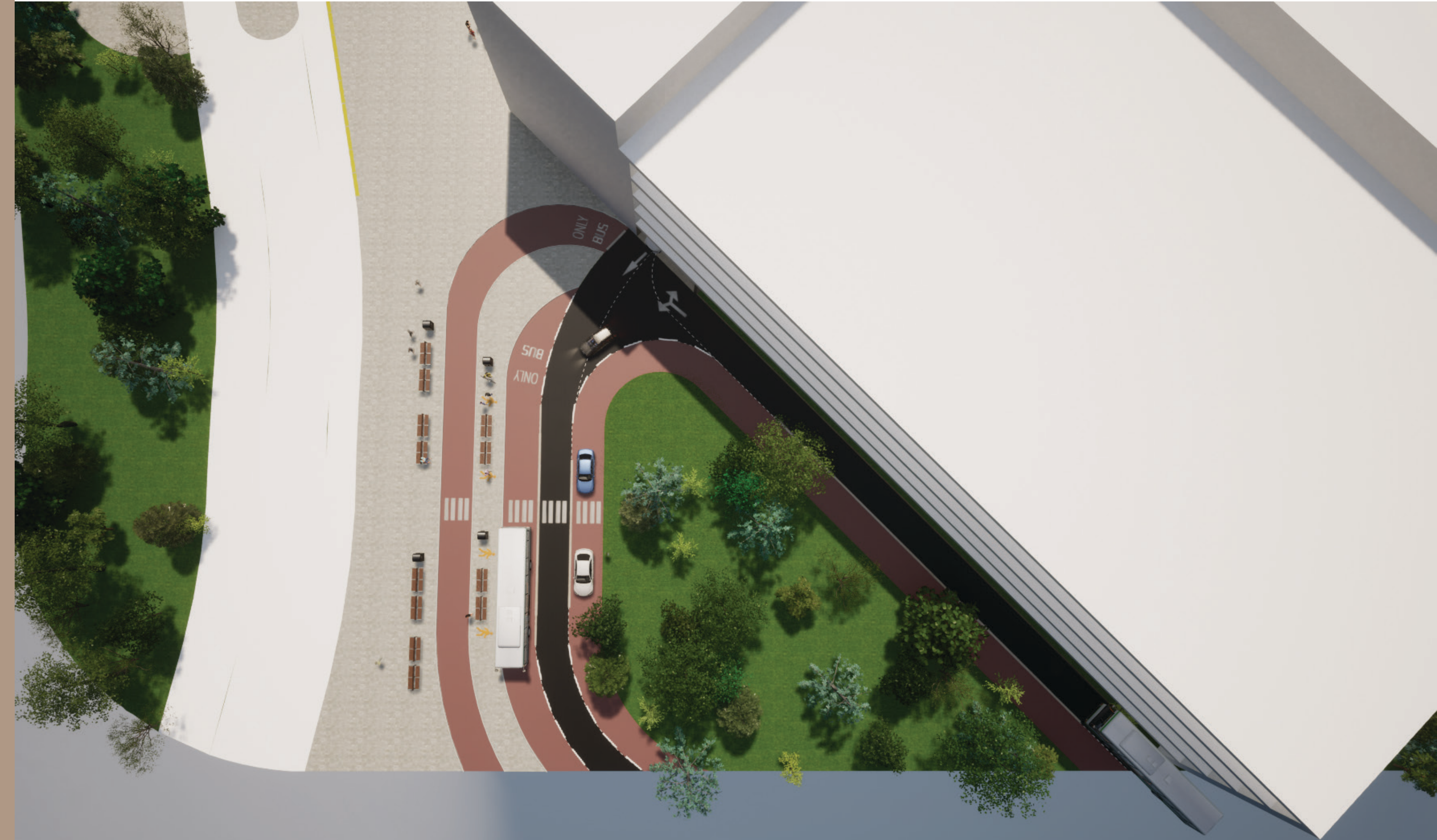


Parking and Pull-Through

“The area I refer to as the pull-through lanes includes two dedicated lanes for busses where the majority of sitewide bus pick-ups and drop-offs occur, a pedestrian island between the two bus lanes, a pick-up and drop-off lane, and a parking garage. The parking garage actually begins on the second floor of the structure, as the ground level is a continuation of the leap path typology. The second through fifth floors serve the attached Fred Meyer and Oregon Medical Clinic Building.”

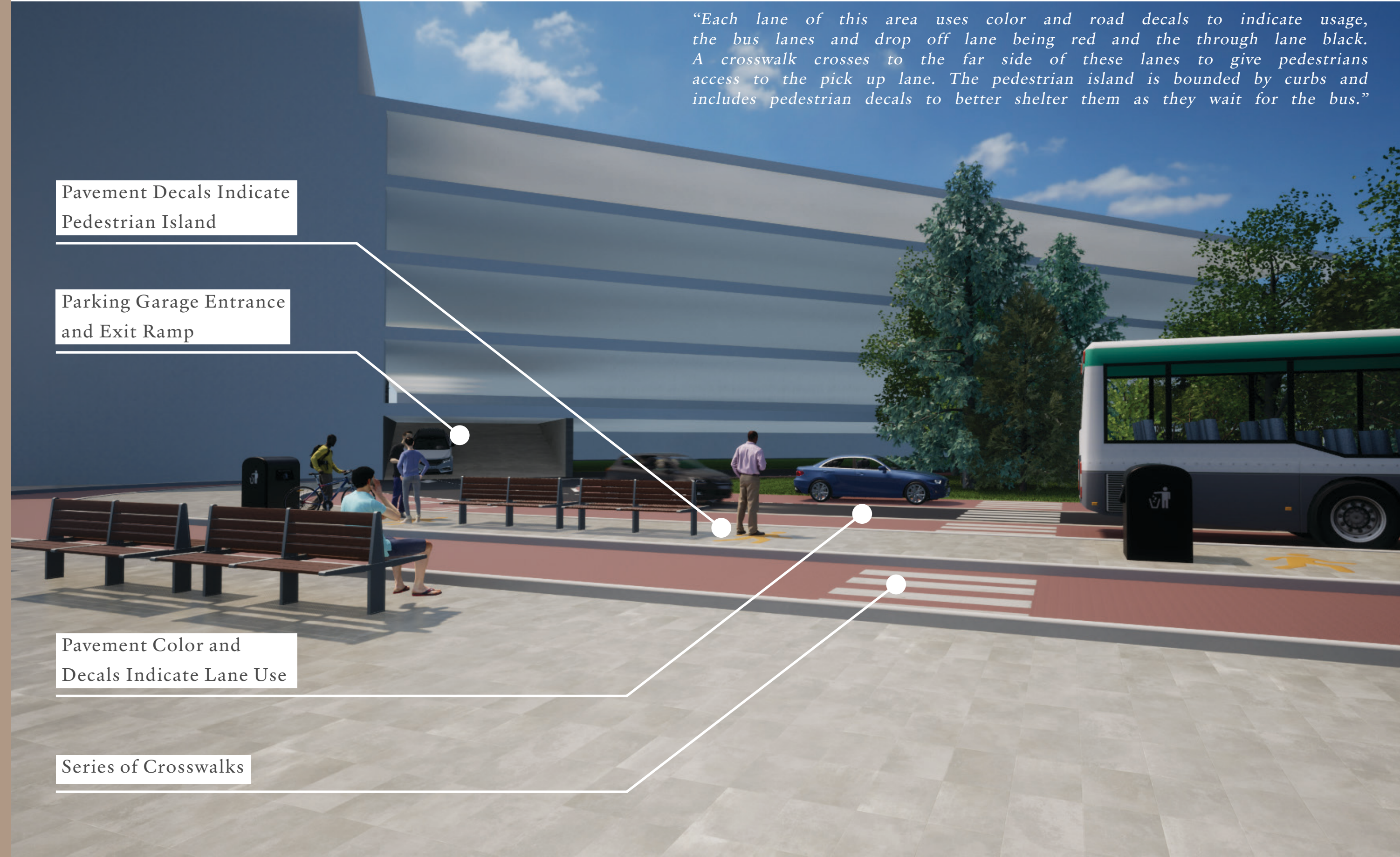


Parking and Pull-Through



Parking and Pull-Through

“Each lane of this area uses color and road decals to indicate usage, the bus lanes and drop off lane being red and the through lane black. A crosswalk crosses to the far side of these lanes to give pedestrians access to the pick up lane. The pedestrian island is bounded by curbs and includes pedestrian decals to better shelter them as they wait for the bus.”



Pavement Decals Indicate Pedestrian Island

Parking Garage Entrance and Exit Ramp

Pavement Color and Decals Indicate Lane Use

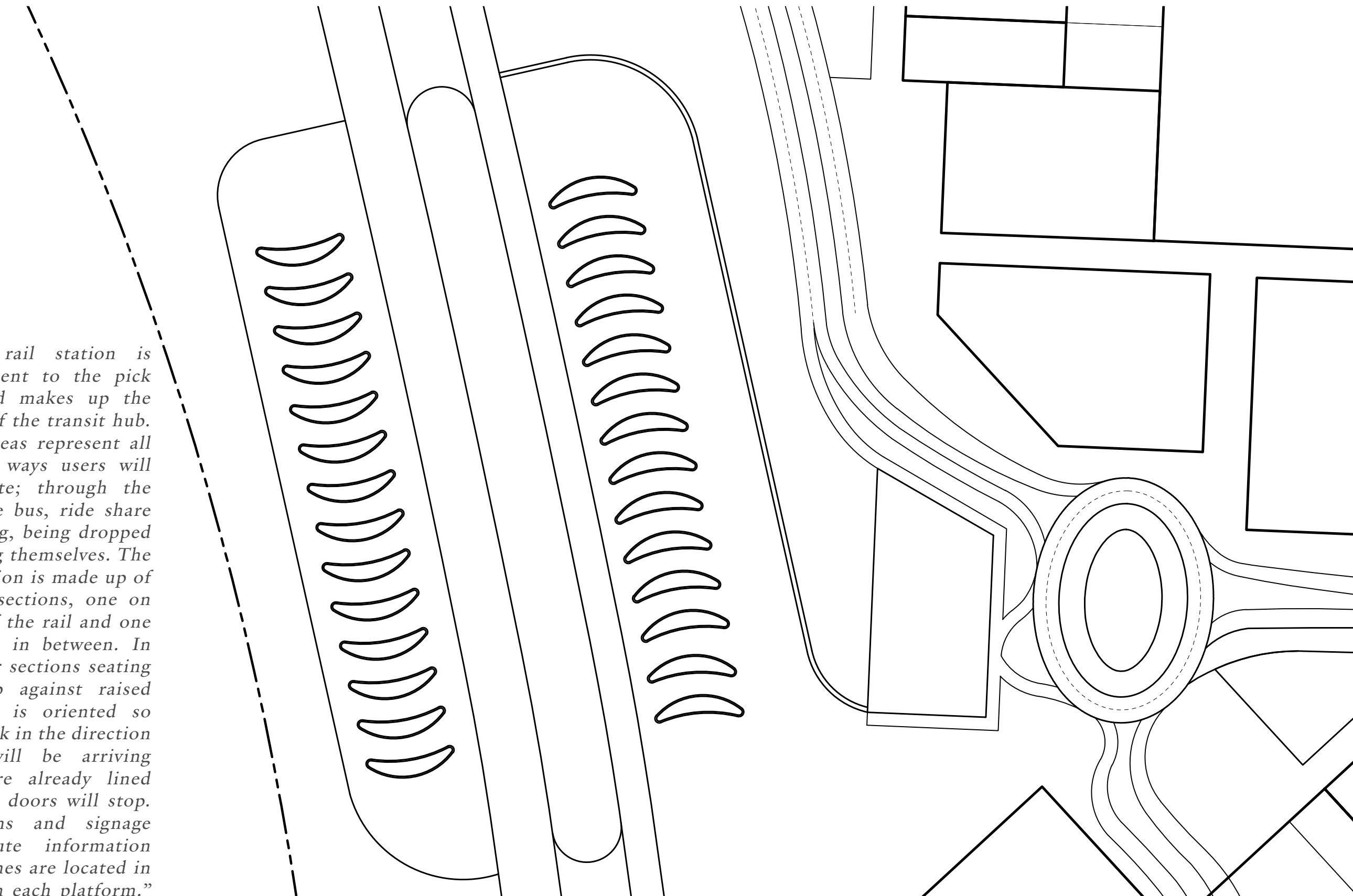
Series of Crosswalks

Focus Areas

Light Rail Station

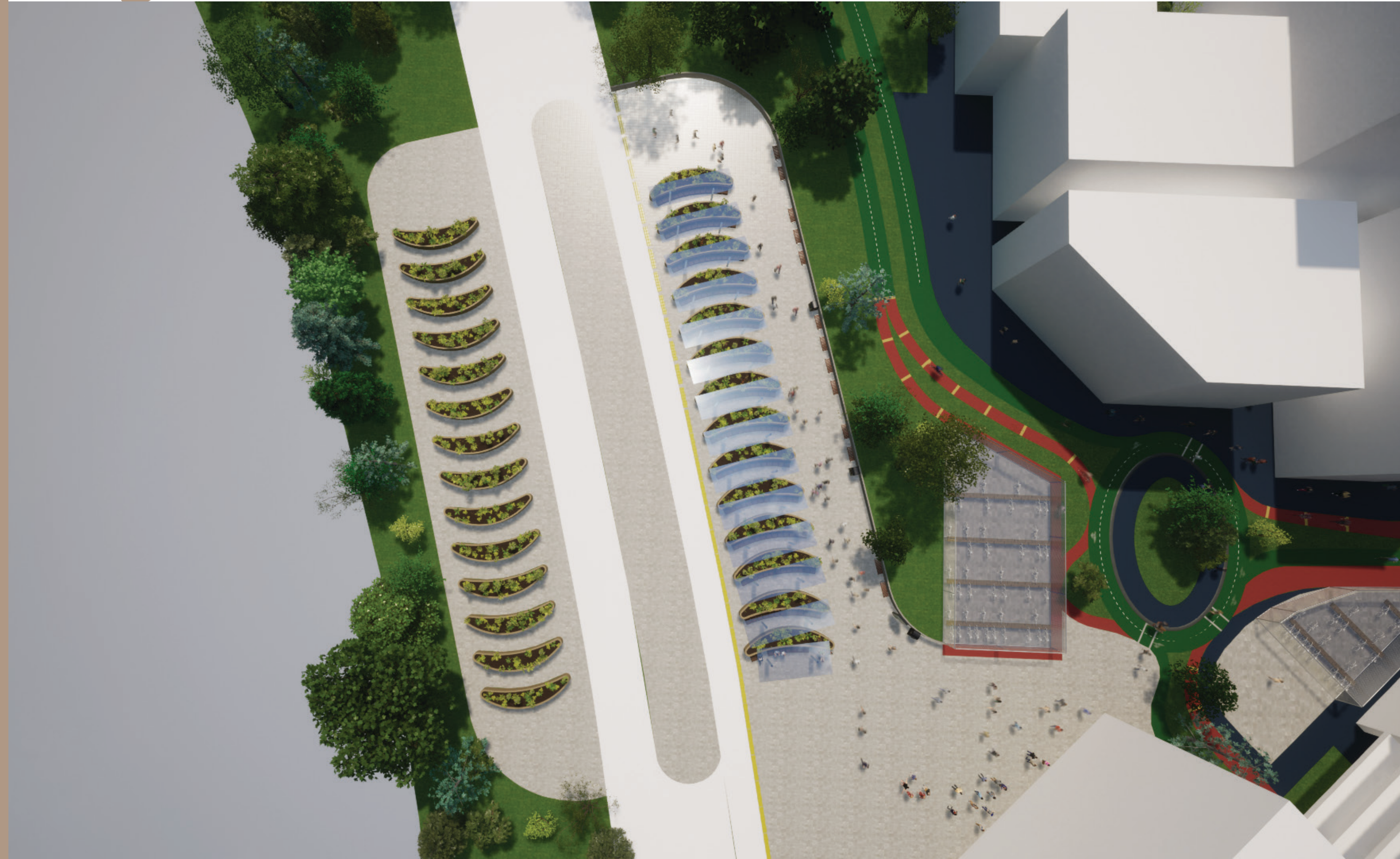
“The light rail station is located adjacent to the pick up lanes and makes up the second half of the transit hub. These two areas represent all of the main ways users will arrive on site; through the light rail, the bus, ride share service, biking, being dropped off, or driving themselves. The light rail station is made up of three paved sections, one on either side of the rail and one small section in between. In the two outer sections seating is placed up against raised planters and is oriented so riders can look in the direction the train will be arriving from and are already lined up where the doors will stop. Ticket booths and signage showing route information and travel times are located in two places on each platform.”

Focus Areas



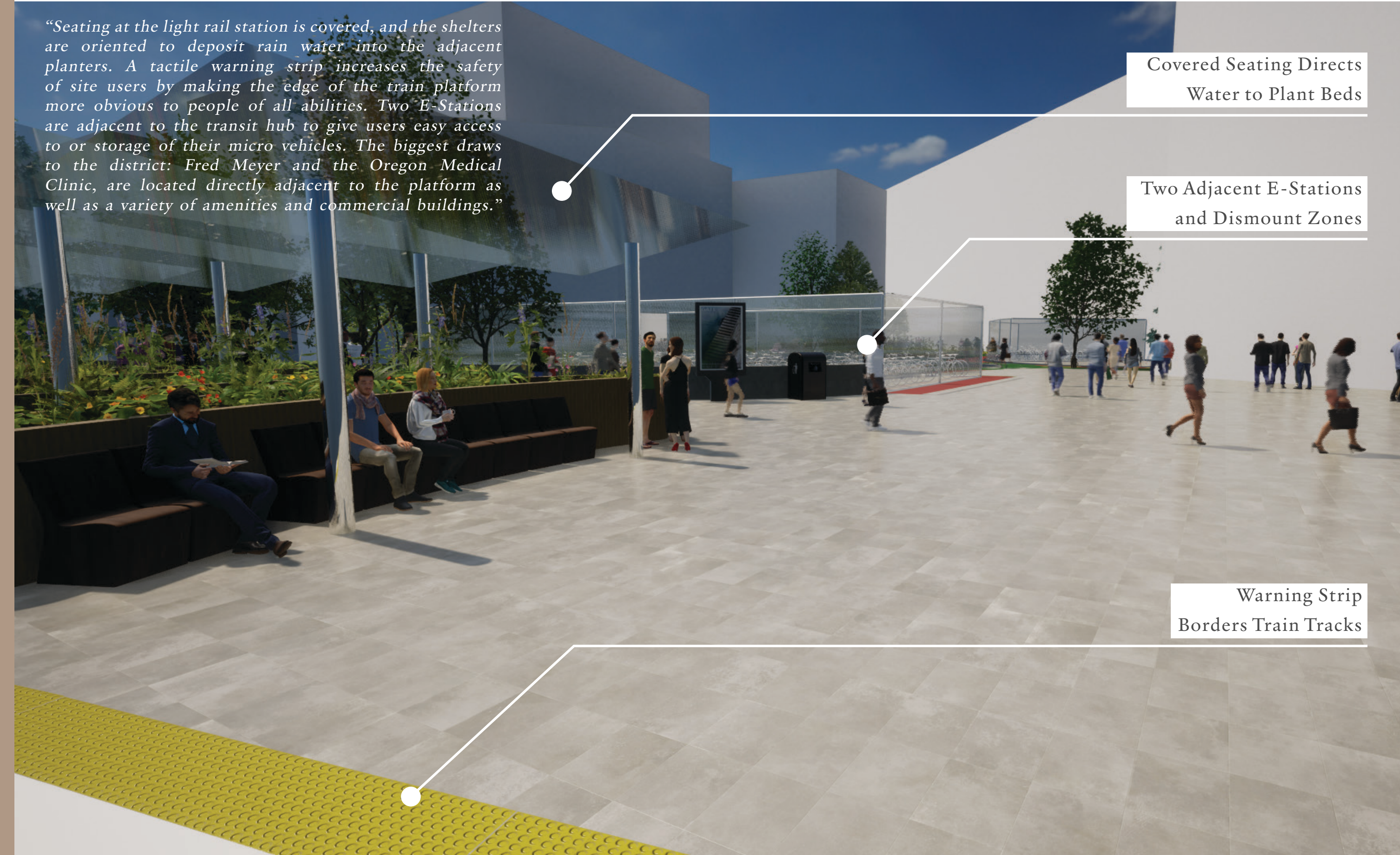
Light Rail Station

Focus Areas



Light Rail Station

Focus Areas



“Seating at the light rail station is covered, and the shelters are oriented to deposit rain water into the adjacent planters. A tactile warning strip increases the safety of site users by making the edge of the train platform more obvious to people of all abilities. Two E-Stations are adjacent to the transit hub to give users easy access to or storage of their micro vehicles. The biggest draws to the district: Fred Meyer and the Oregon Medical Clinic, are located directly adjacent to the platform as well as a variety of amenities and commercial buildings.”

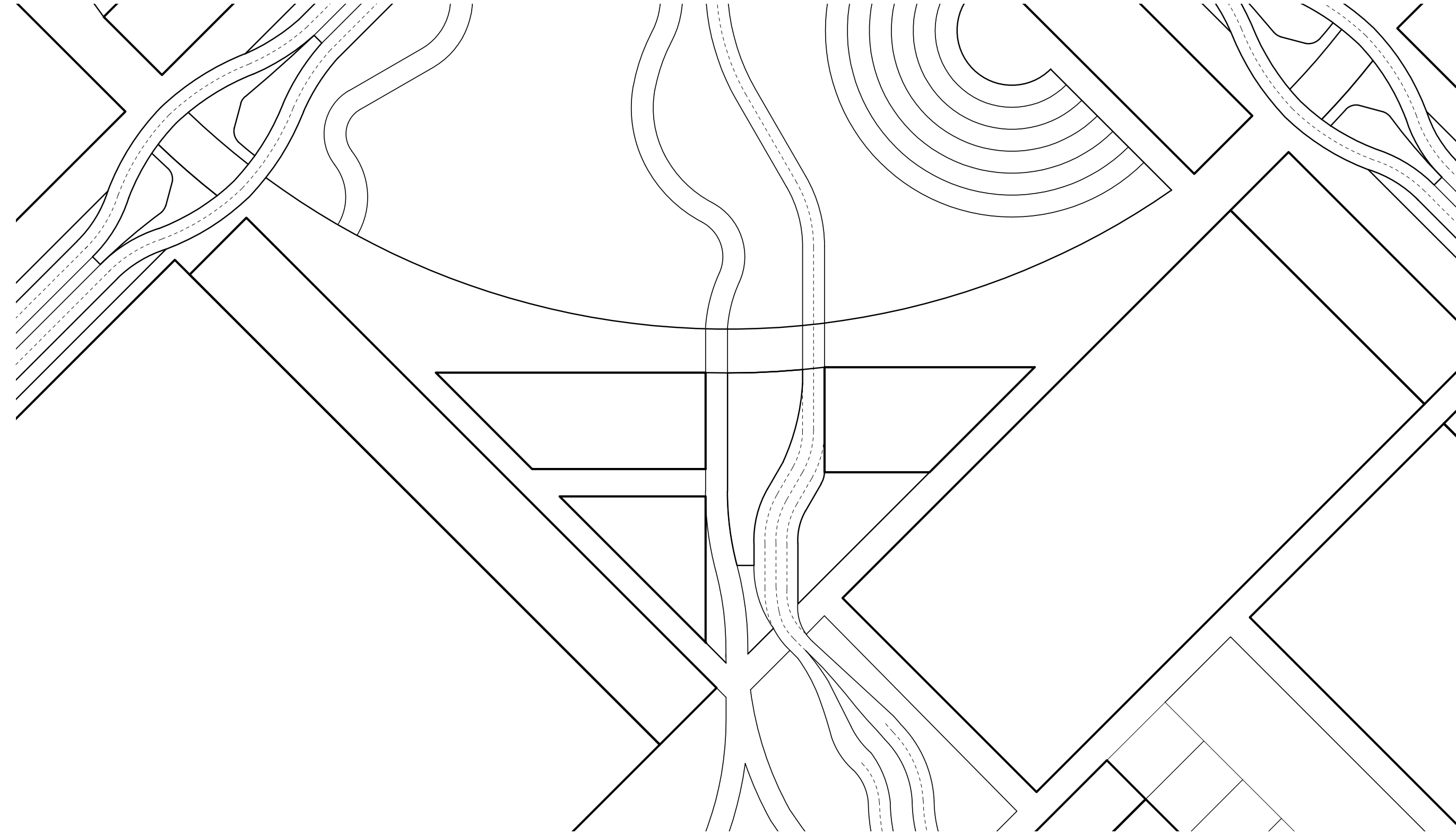
Covered Seating Directs
Water to Plant Beds

Two Adjacent E-Stations
and Dismount Zones

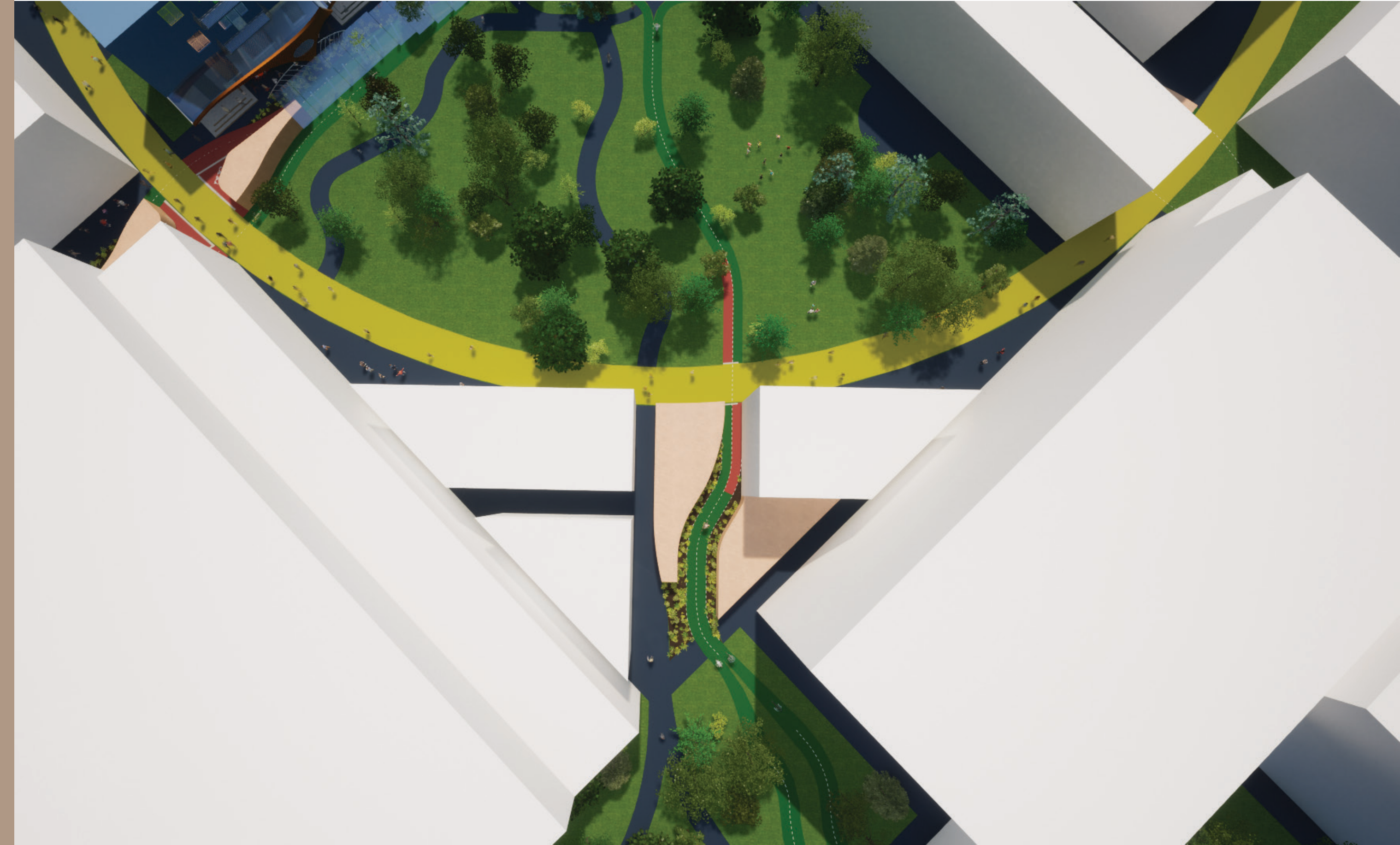
Warning Strip
Borders Train Tracks

“Skip” Typology

“The ‘Skip’ typology is a step down from the ‘Jump’ and ‘Leap’ typologies in terms of size and speed of travel. It also accommodates only pedestrians. This typology is comprised of one ten foot wide walking path.”

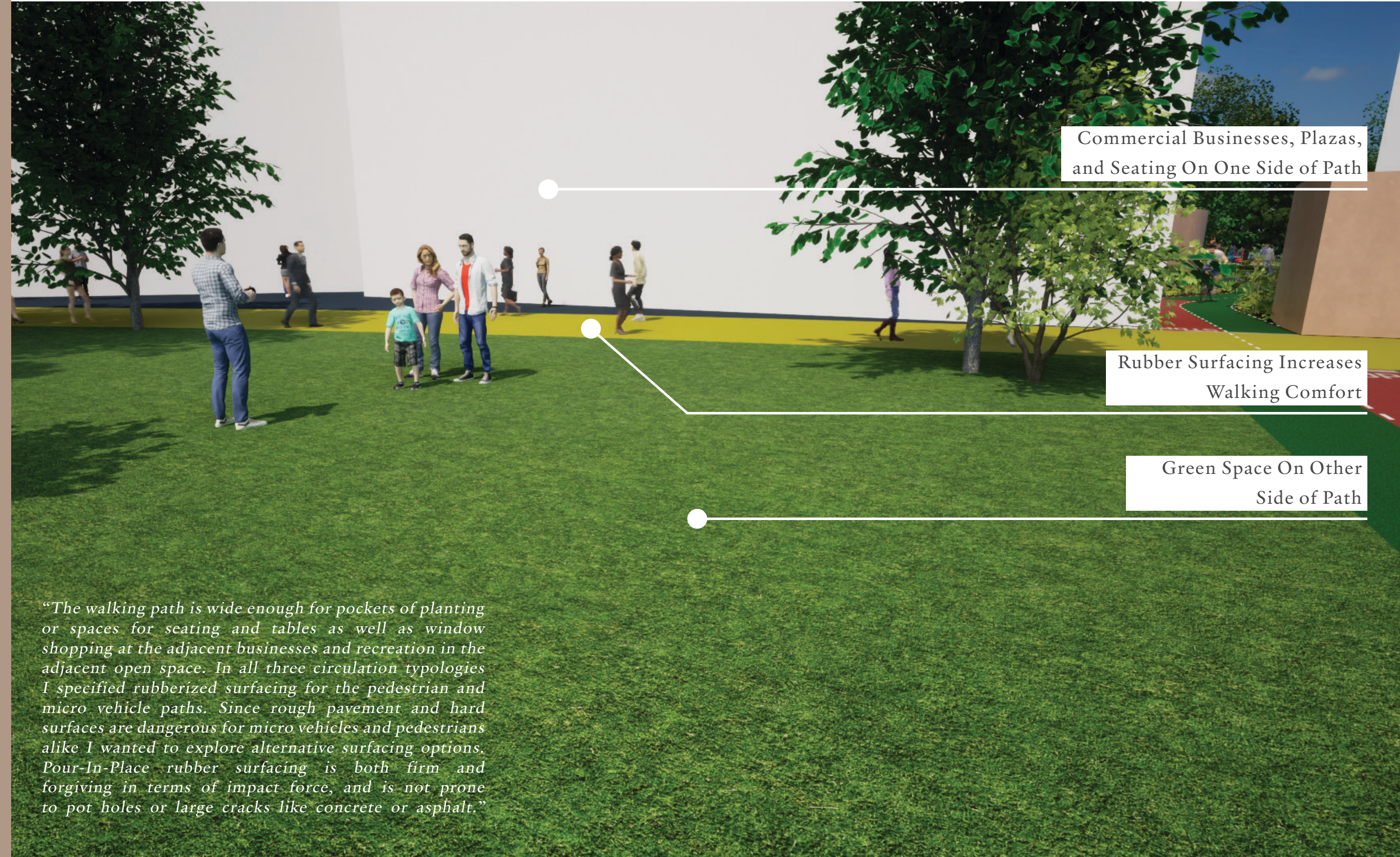


“Skip” Typology



“Skip” Typology

Focus Areas



Commercial Businesses, Plazas, and Seating On One Side of Path

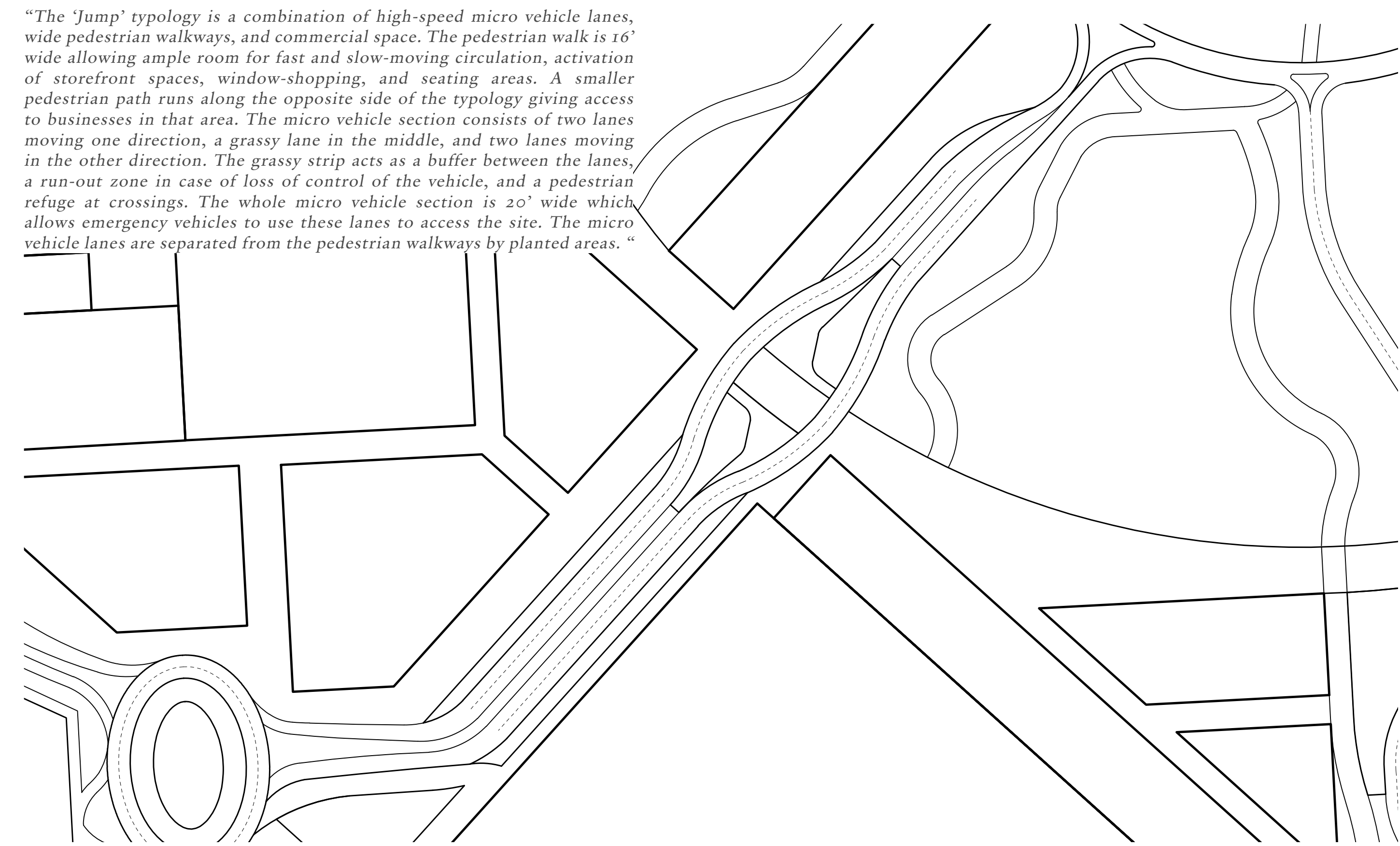
Rubber Surfacing Increases Walking Comfort

Green Space On Other Side of Path

“The walking path is wide enough for pockets of planting or spaces for seating and tables as well as window shopping at the adjacent businesses and recreation in the adjacent open space. In all three circulation typologies I specified rubberized surfacing for the pedestrian and micro vehicle paths. Since rough pavement and hard surfaces are dangerous for micro vehicles and pedestrians alike I wanted to explore alternative surfacing options. Pour-In-Place rubber surfacing is both firm and forgiving in terms of impact force, and is not prone to pot holes or large cracks like concrete or asphalt.”

“Jump” Typology

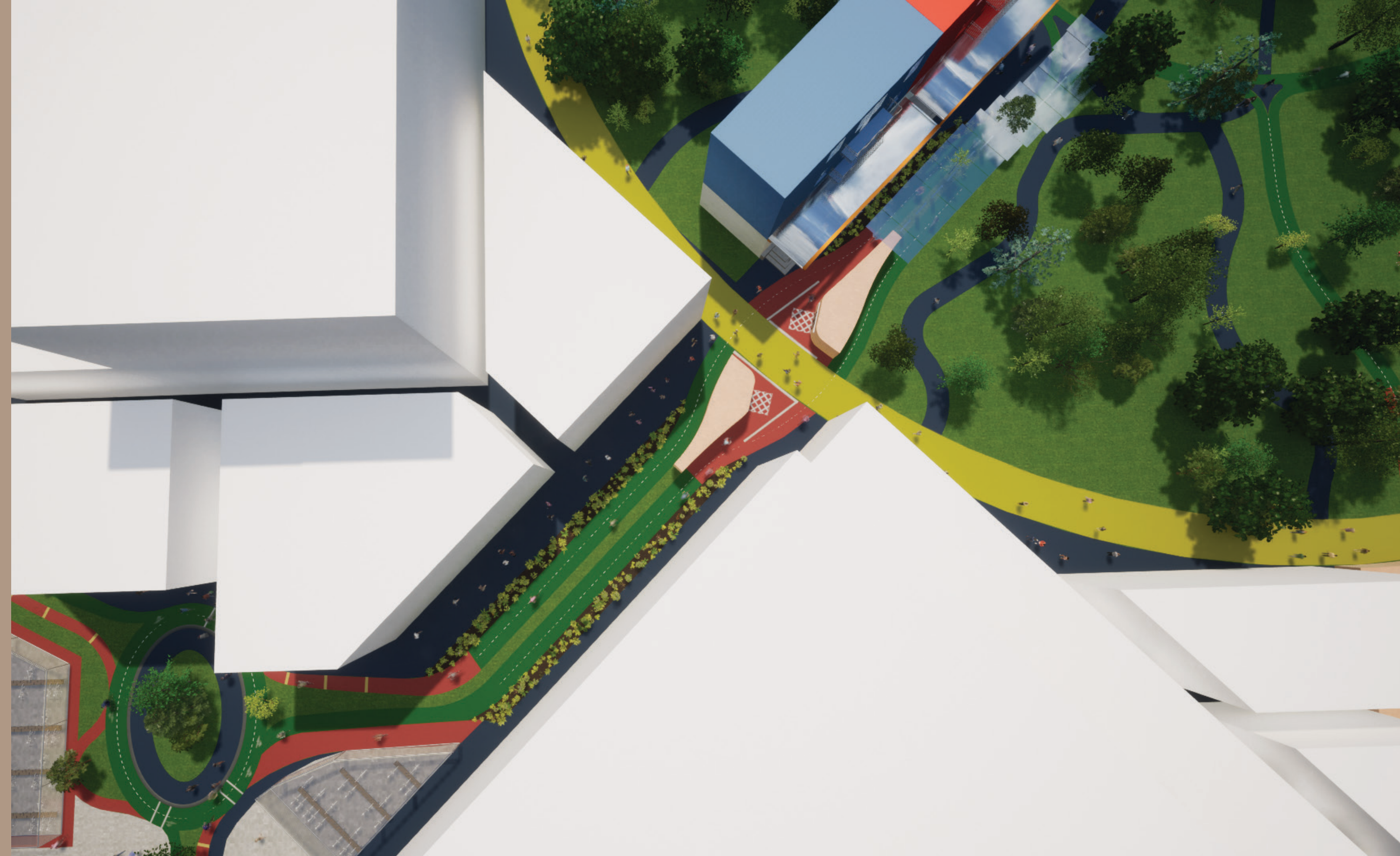
Focus Areas



“The ‘Jump’ typology is a combination of high-speed micro vehicle lanes, wide pedestrian walkways, and commercial space. The pedestrian walk is 16’ wide allowing ample room for fast and slow-moving circulation, activation of storefront spaces, window-shopping, and seating areas. A smaller pedestrian path runs along the opposite side of the typology giving access to businesses in that area. The micro vehicle section consists of two lanes moving one direction, a grassy lane in the middle, and two lanes moving in the other direction. The grassy strip acts as a buffer between the lanes, a run-out zone in case of loss of control of the vehicle, and a pedestrian refuge at crossings. The whole micro vehicle section is 20’ wide which allows emergency vehicles to use these lanes to access the site. The micro vehicle lanes are separated from the pedestrian walkways by planted areas.”

“Jump” Typology

Focus Areas



“Jump” Typology

Focus Areas



“The lanes themselves are color coded; red when riders need to slow down or stop and green when they are free of any obstacles. Unlike the other paths, both the pedestrian paths and the micro vehicle paths are covered in this typology. Since these are the most direct paths through the site I wanted users to have a dry option for commuting on rainy days.”

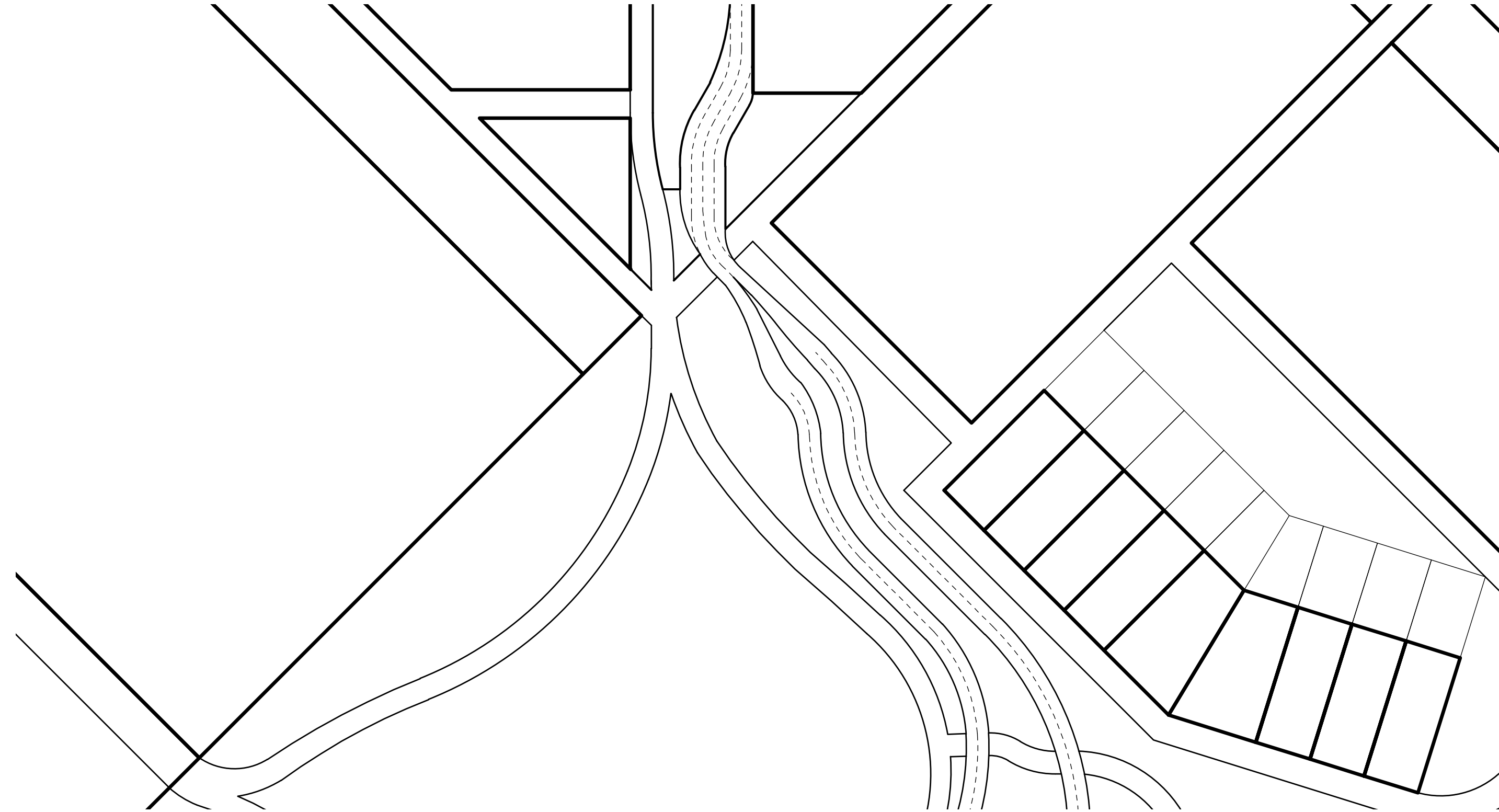
Covered Pedestrian Walk and
Micro Vehicle Lane

Businesses on the First Floor
Residential on the Second Floor

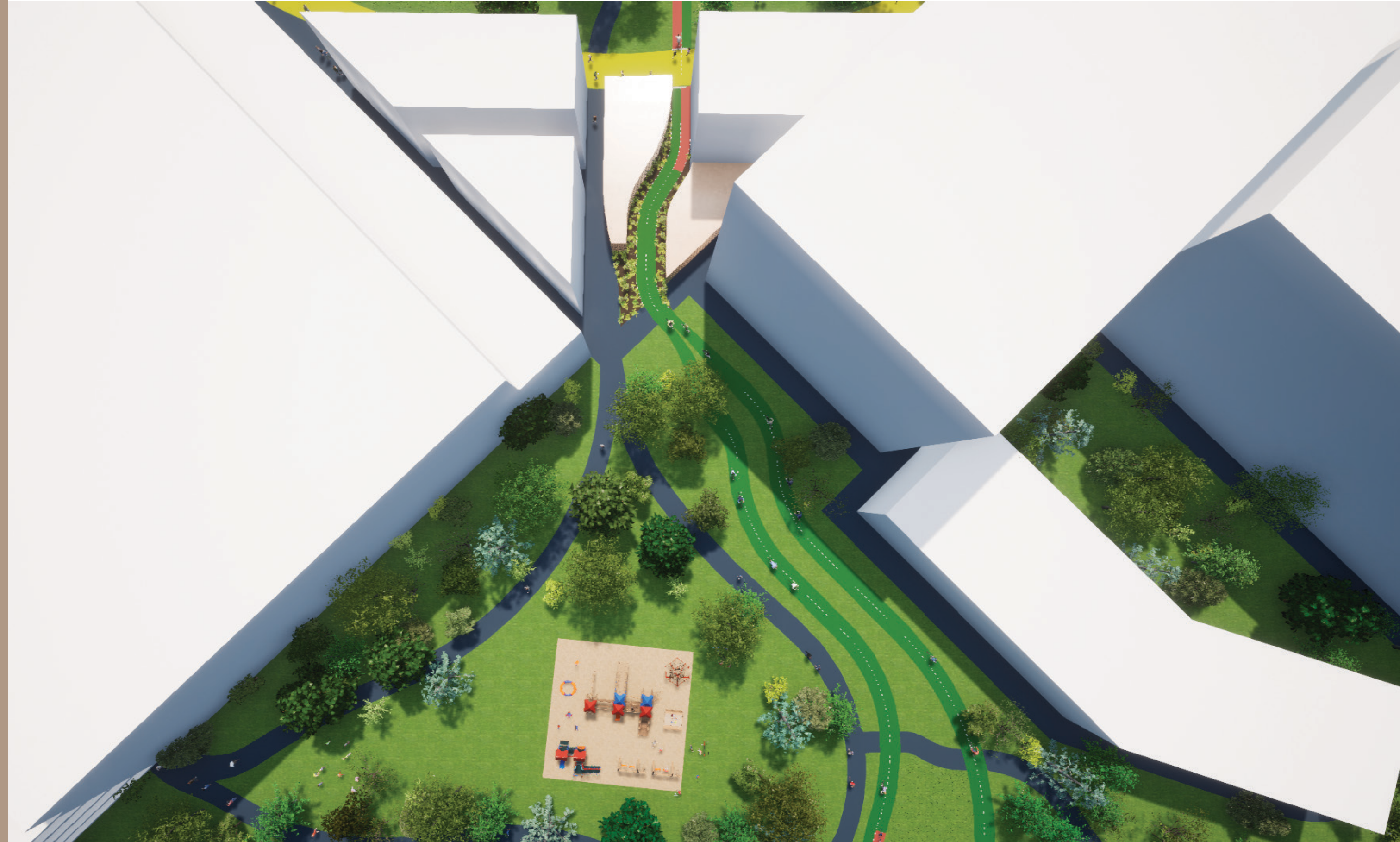
Areas For Seating and
Storefront Activation

“Leap” Typology

“Leap’ is a wide greenway which emphasizes high-speed micro vehicle travel and recreation including walking, running, and athletics. This typology can range in width, but is never narrower than 66’.”



“Leap” Typology



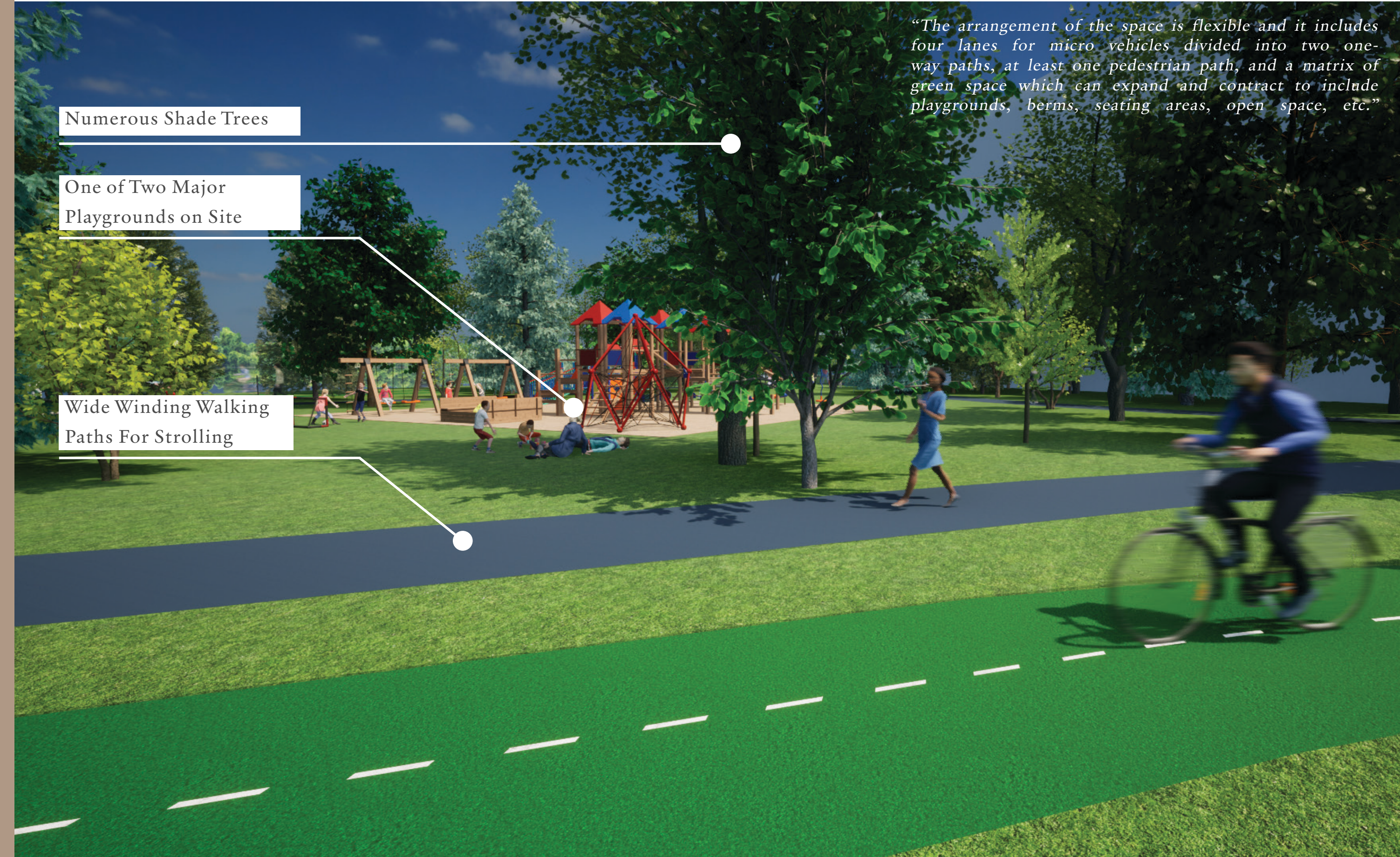
“Leap” Typology

“The arrangement of the space is flexible and it includes four lanes for micro vehicles divided into two one-way paths, at least one pedestrian path, and a matrix of green space which can expand and contract to include playgrounds, berms, seating areas, open space, etc.”

Numerous Shade Trees

One of Two Major Playgrounds on Site

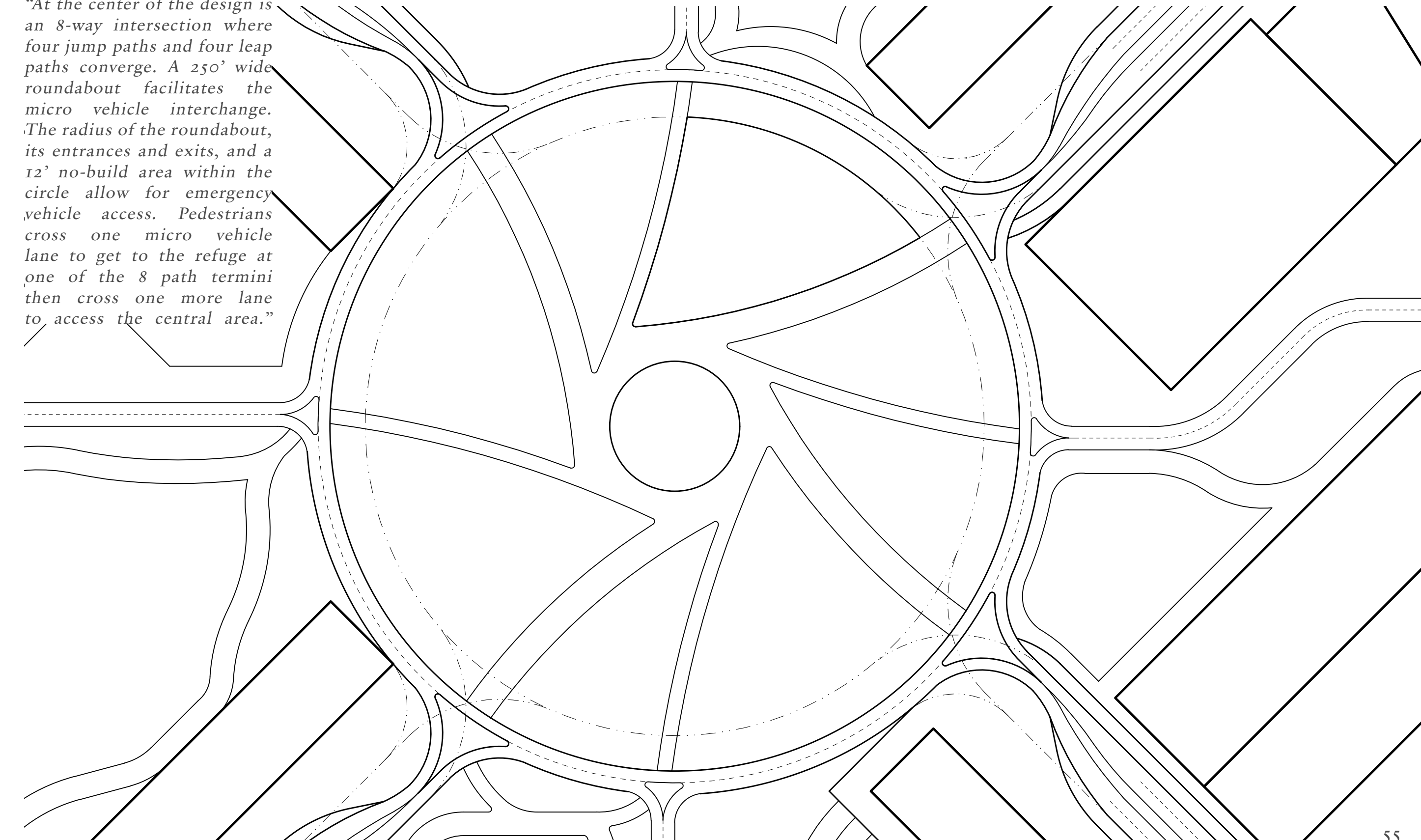
Wide Winding Walking Paths For Strolling



Focus Areas

Central Roundabout

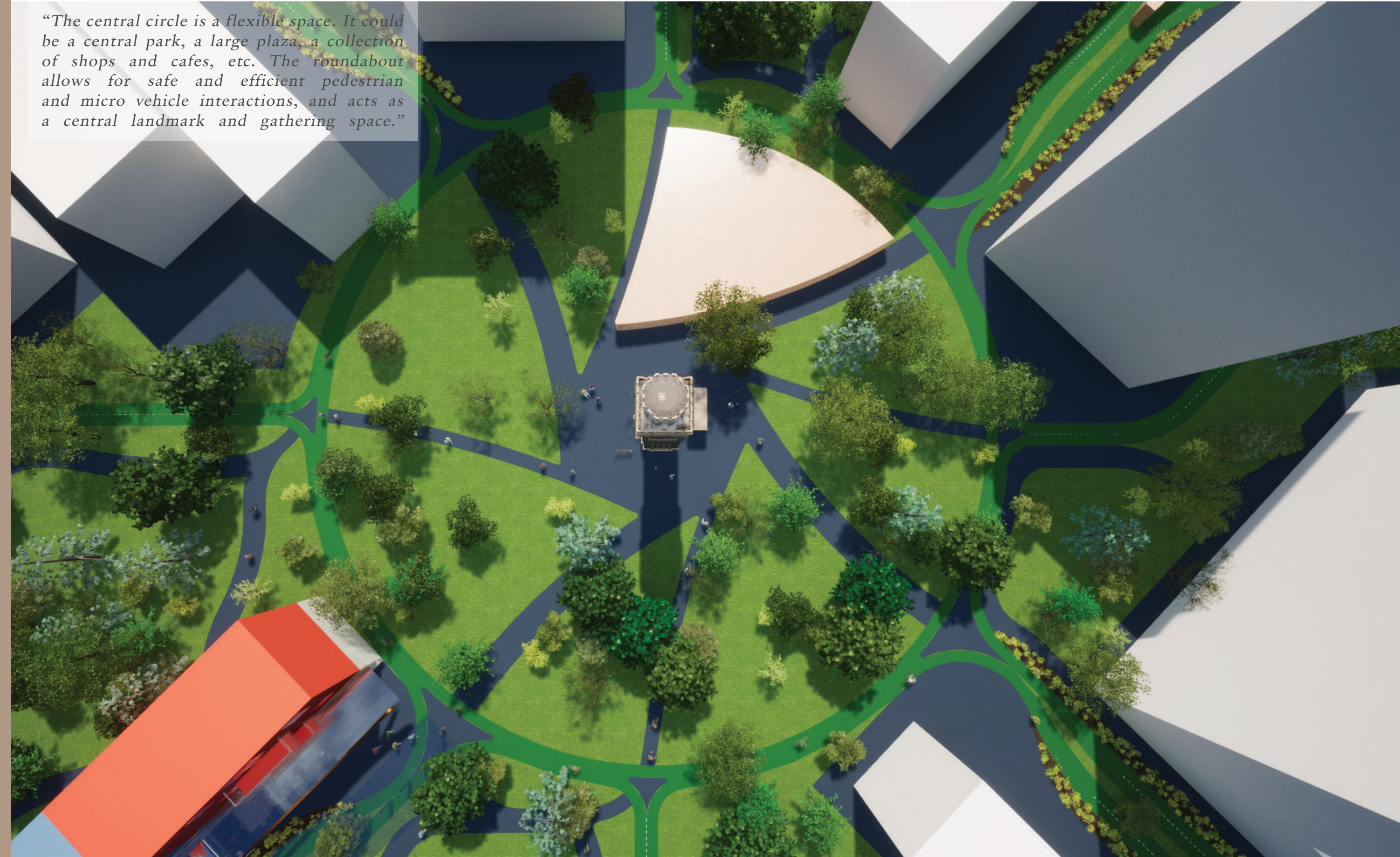
“At the center of the design is an 8-way intersection where four jump paths and four leap paths converge. A 250’ wide roundabout facilitates the micro vehicle interchange. The radius of the roundabout, its entrances and exits, and a 12’ no-build area within the circle allow for emergency vehicle access. Pedestrians cross one micro vehicle lane to get to the refuge at one of the 8 path termini then cross one more lane to access the central area.”



Focus Areas

Central Roundabout

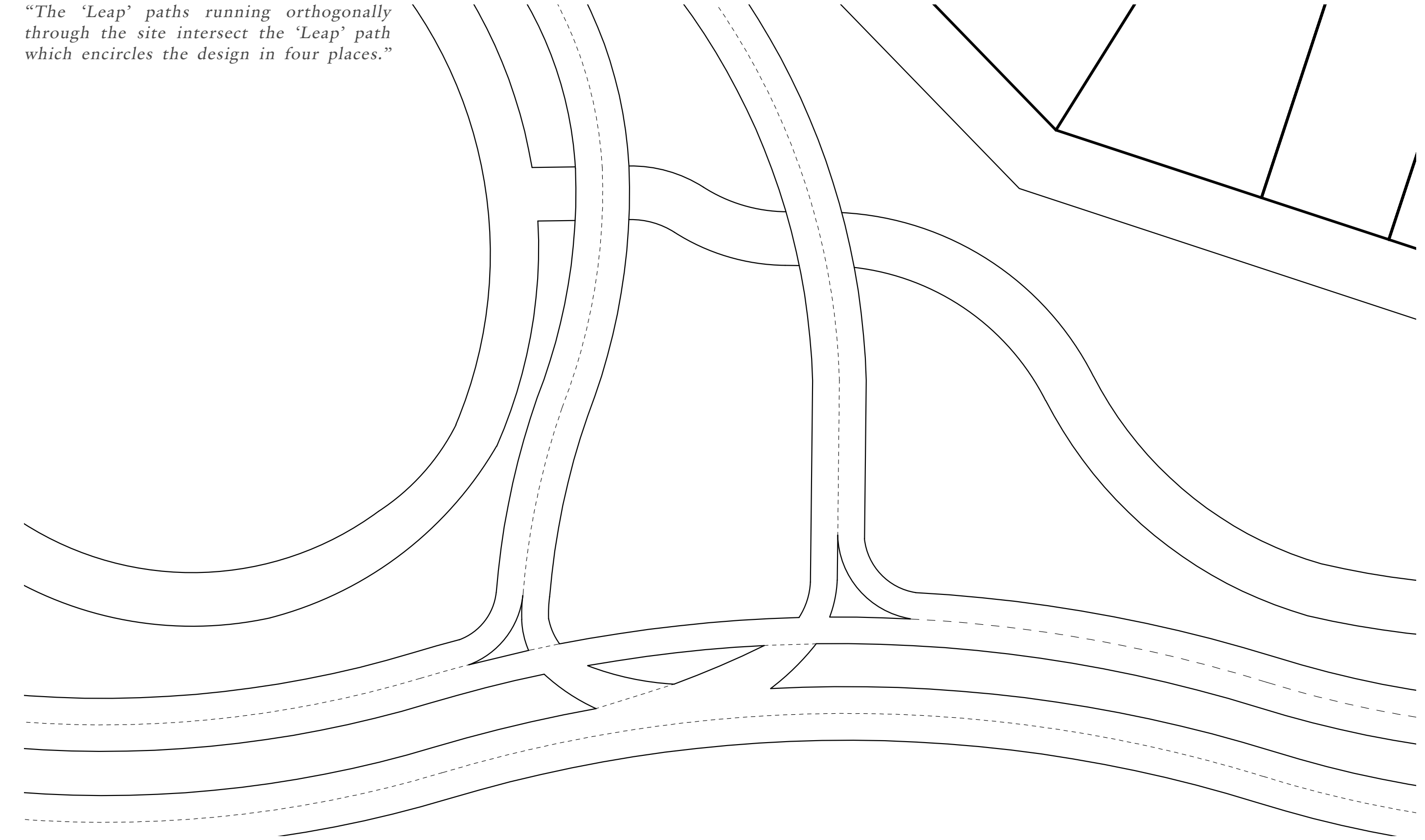
"The central circle is a flexible space. It could be a central park, a large plaza, a collection of shops and cafes, etc. The roundabout allows for safe and efficient pedestrian and micro vehicle interactions, and acts as a central landmark and gathering space."



Focus Areas

"Leap-Leap" Intersection

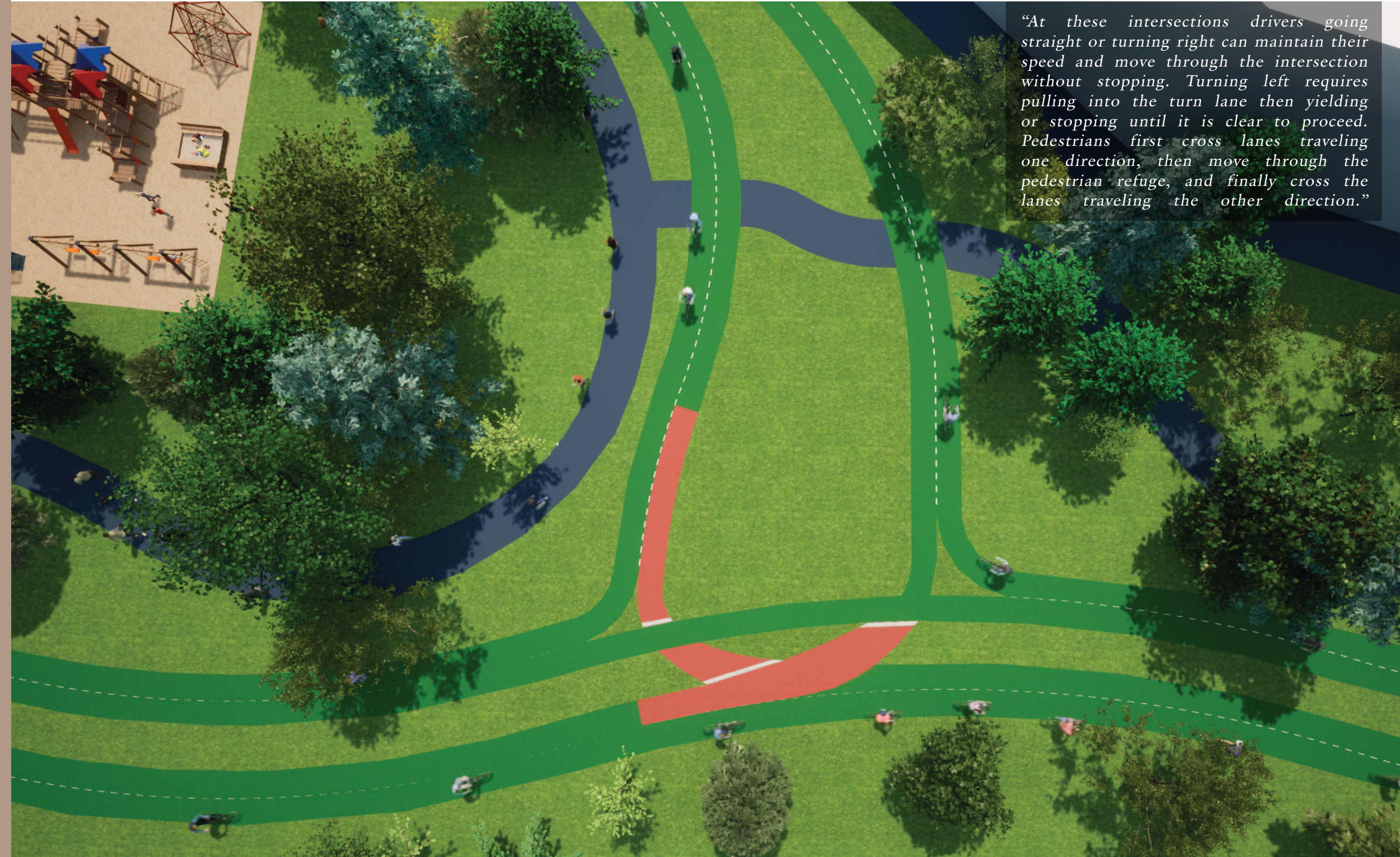
"The 'Leap' paths running orthogonally through the site intersect the 'Leap' path which encircles the design in four places."



Focus Areas

“Leap-Leap” Intersection

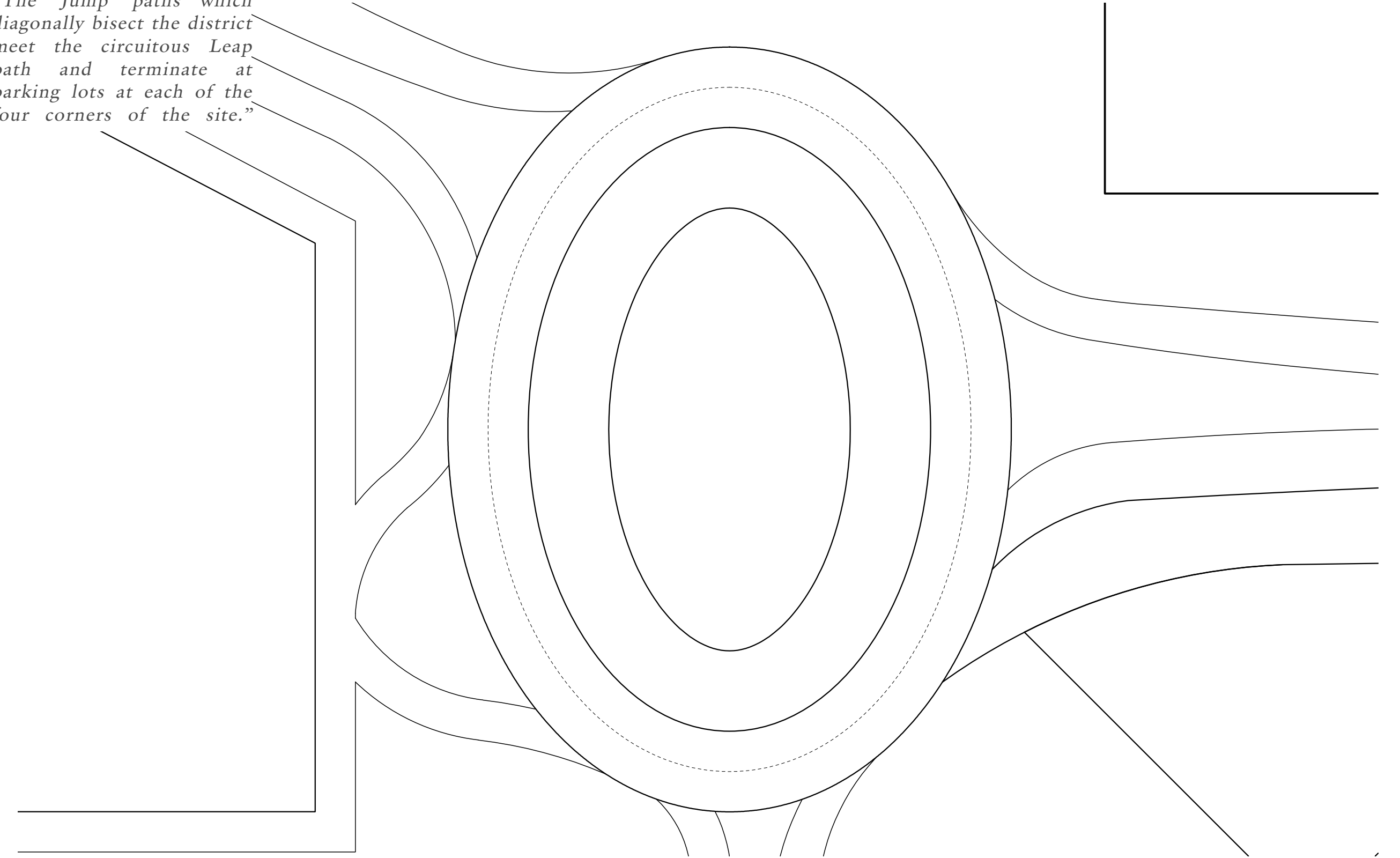
“At these intersections drivers going straight or turning right can maintain their speed and move through the intersection without stopping. Turning left requires pulling into the turn lane then yielding or stopping until it is clear to proceed. Pedestrians first cross lanes traveling one direction, then move through the pedestrian refuge, and finally cross the lanes traveling the other direction.”



Focus Areas

“Jump-Leap” Intersection

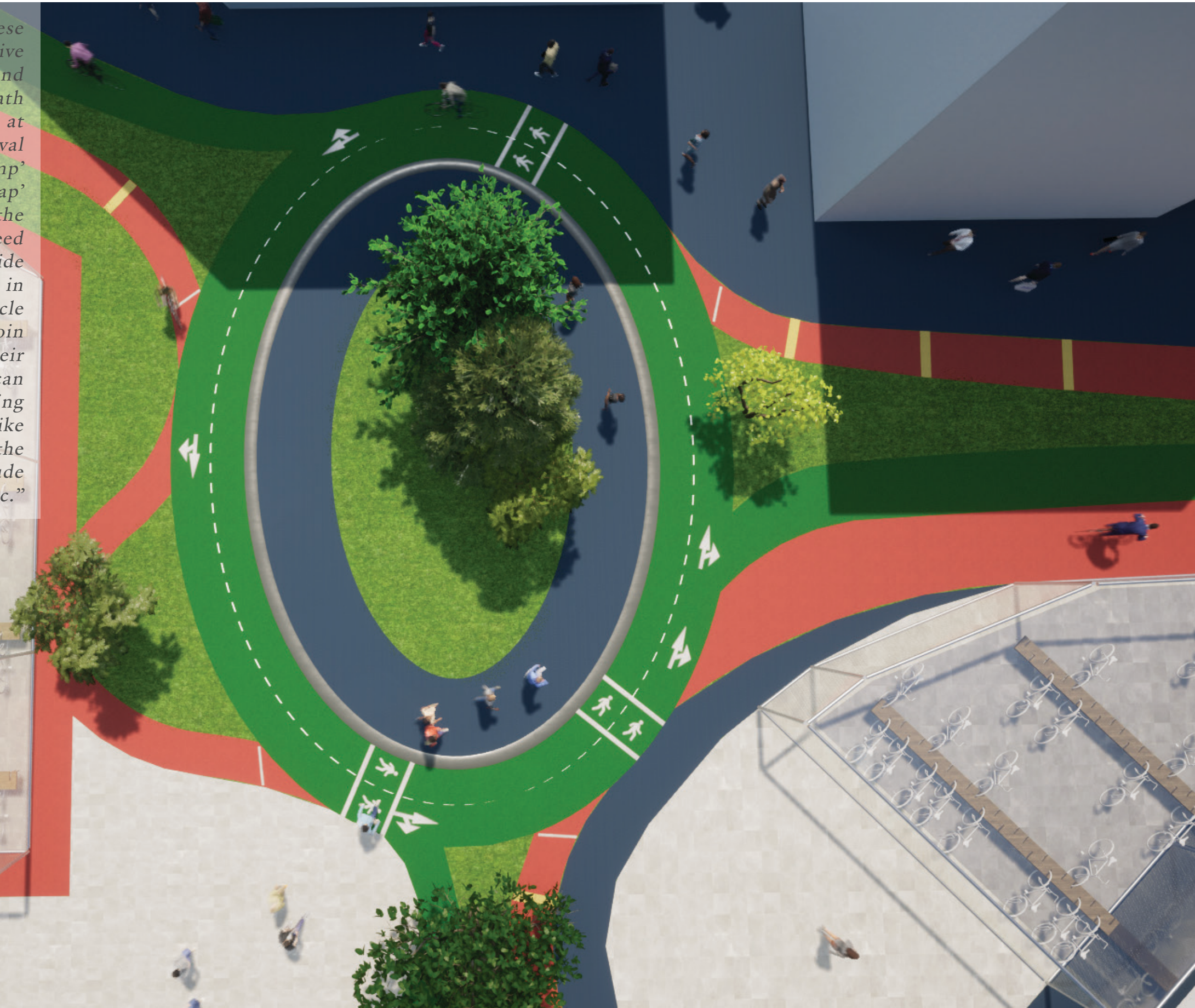
“The ‘Jump’ paths which diagonally bisect the district meet the circuitous Leap path and terminate at parking lots at each of the four corners of the site.”



Focus Areas

“Jump-Leap” Intersection

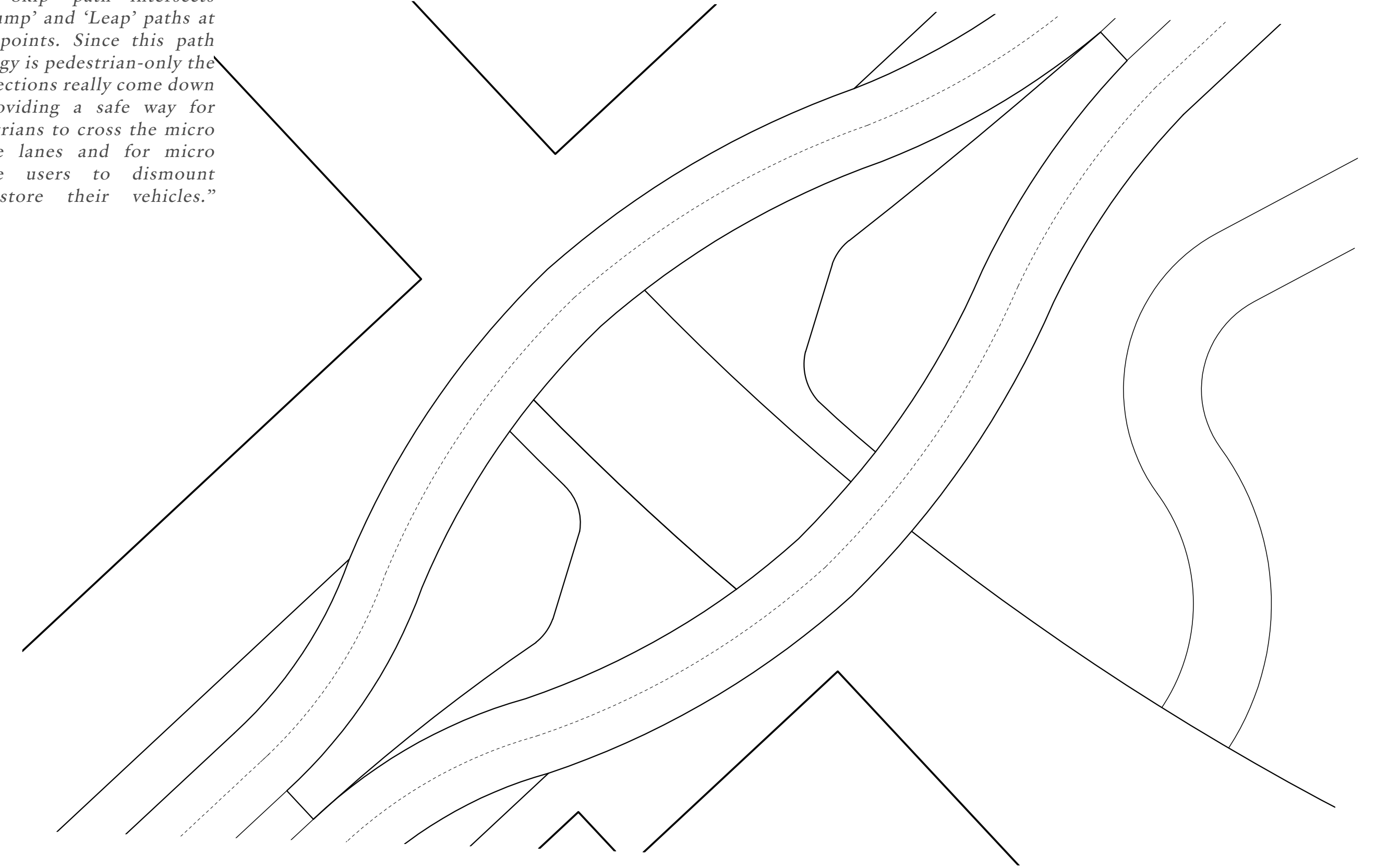
“I used oblong roundabouts at these intersections to slow vehicles, give pedestrians a safer crossing method, and to represent a terminus to the ‘Jump’ path typology. The ‘Jump’ path starts and ends at this roundabout. The East side of the oval requires riders entering from the ‘Jump’ path to significantly slow or stop. The ‘Leap’ paths enter and exit the roundabout at the small ends of the oval minimizing the need to slow and change direction. The last side of the roundabout faces the parking lot or in this case the transit hub. Here micro vehicle users can enter and leave the site and join the adjacent streets’ bike lanes or stow their vehicle in the ‘e-lockers’. Pedestrians can come and go from any direction by crossing into the center of the roundabout. Like the central intersection, this middle of the roundabout is a flexible space and can include a global landmark, a parklet, a fountain, etc.”



Focus Areas

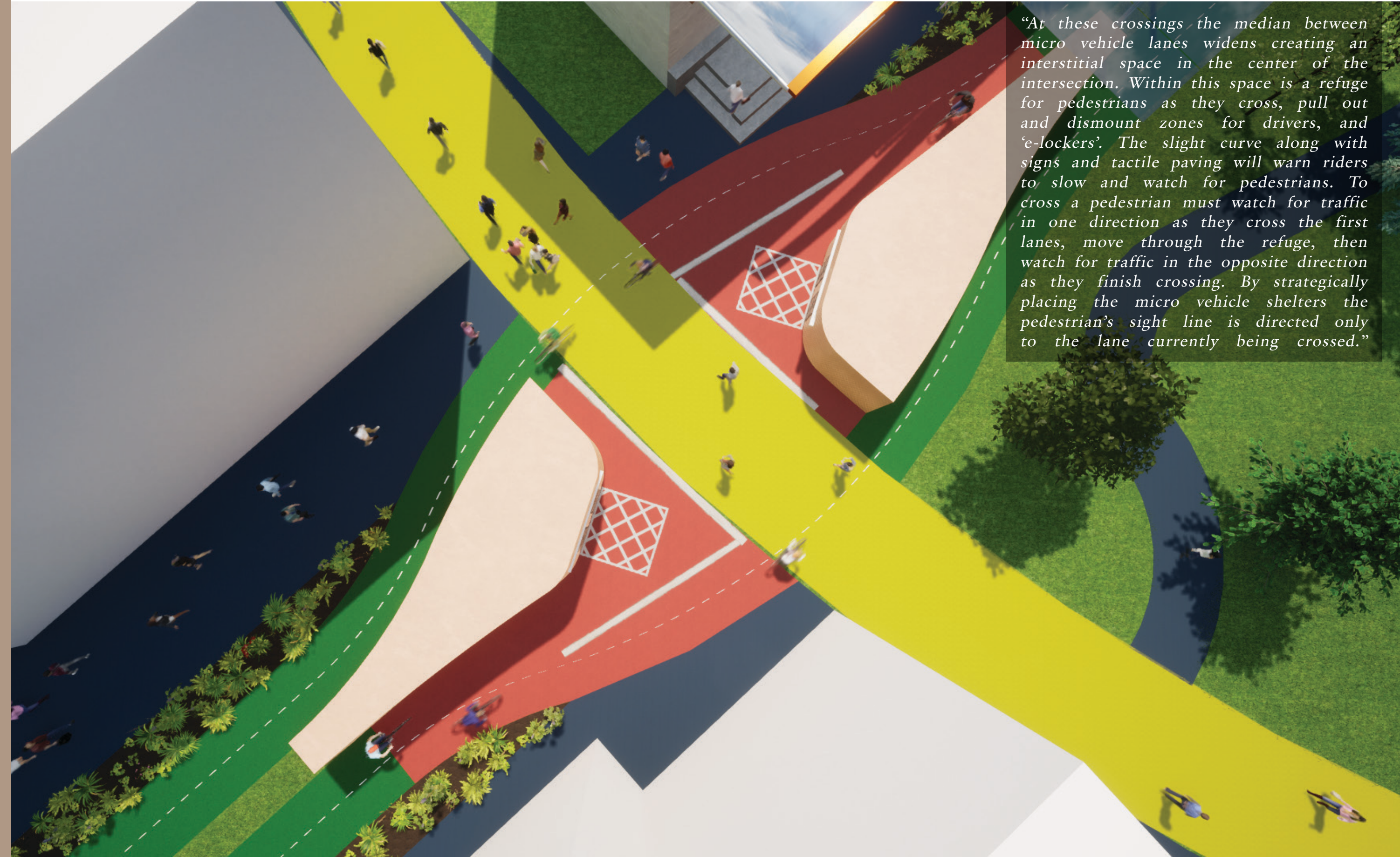
“Skip-Jump” Intersection

“The ‘Skip’ path intersects the ‘Jump’ and ‘Leap’ paths at eight points. Since this path typology is pedestrian-only the intersections really come down to providing a safe way for pedestrians to cross the micro vehicle lanes and for micro vehicle users to dismount and store their vehicles.”



Focus Areas

“Skip-Jump” Intersection



“At these crossings the median between micro vehicle lanes widens creating an interstitial space in the center of the intersection. Within this space is a refuge for pedestrians as they cross, pull out and dismount zones for drivers, and ‘e-lockers’. The slight curve along with signs and tactile paving will warn riders to slow and watch for pedestrians. To cross a pedestrian must watch for traffic in one direction as they cross the first lanes, move through the refuge, then watch for traffic in the opposite direction as they finish crossing. By strategically placing the micro vehicle shelters the pedestrian’s sight line is directed only to the lane currently being crossed.”

Design Successes

“So after all this work it would seem that I have only just dipped my toe into designing a development like this one. Looking back, I believe that I have achieved some of my goals and their associated objectives very strongly. These include providing access to green space for site residents, inventing safe and efficient circulation typologies, providing adequate storage and charging options for site users, protecting pedestrians from micro vehicles and vice versa, including the necessary building space for numerous kinds of housing including low income, and providing for all essential business types to be present on the site.”

Access to Green

- All residents will live within 500' of the site walking trail/green space
- A circuitous greenway will provide a loop for walking and riding

Circulation

A hierarchy of path typologies will facilitate safe and efficient travel for micro vehicles and pedestrians

Micro-Vehicle Storage

- “e-lockers” will be provided for all site users to store and charge micro vehicles
- “e-lockers” will be located so that no area is more than 200' away from one

Vehicle-Pedestrian Interactions

- Micro vehicles will have dedicated lanes physically separated from pedestrians
- Refuges at crossings will ensure that pedestrians only cross one direction of micro vehicle traffic at a time
- Frequently placed mount and dismount zones will enable safe pedestrian-vehicle transitions

Provide Housing

- All buildings will be built up to within 25% of the maximum allowed building height (75')
- 25% of housing will be rented at rates of 80% Median Family Income (Low Income Housing)

Essential Services

- Building usage will include space for living, working, commerce, healthcare, education, and entertainment
- Fred Meyer and the Oregon Medical Clinic will remain on site

Design Failures

“Perhaps more important than my successes though are where my design was lacking. Evaluating my work based on my initial list of selected goals and objectives I have fallen short in the following categories. I don’t believe that I included enough space or special consideration for community building spaces, and after modeling the design in three dimensions I was struck by how narrow the pedestrian paths actually appear. I’m not sure that I provided enough space for storefront activation or for accommodating a variety of uses. I also believe that my station design is still lacking a few key elements. I would have liked to more intentionally place ticketing and signage options as well as different kinds of seating or areas for standing. I also never got around to actually placing the wayfinding elements that I intended to such as signage or pavement decals. I also made a mistake when placing e stations in that I inadvertently blocked the emergency vehicle access lanes I initially made room for.”

Community

Provide at least 25,000 square feet of outdoor “community spaces” (plaza, patio, seating, socializing)

Arterial walking paths will be at least 10’ wide to accommodate large groups, seating areas, street vendors, etc.

Station Design

Transportation HUB will provide appropriate seating, shading, lighting, signage, and ticketing

Wayfinding

Signage at major intersections will help direct site users and display transit information

Essential Services

One path typology will allow the necessary clearance and turning radius for emergency and utility vehicle access

Design Failures

“As I reached end of this project I was plagued by this question: did I make the mistake as the planners who originally designed our cities? Did I prioritize efficiency of travel above other potentially more important goals like well being, comfort, or community? When I started this project I was imagining designing a city for pedestrians, but now I worry that I spent too much time designing for vehicles, albeit small ones.”

Community

Provide at least 25,000 square feet of outdoor “community spaces” (plaza, patio, seating, socializing)

Arterial walking paths will be at least 10’ wide to accommodate large groups, seating areas, street vendors, etc.

Station Design

Transportation HUB will provide appropriate seating, shading, lighting, signage, and ticketing

Wayfinding

Signage at major intersections will help direct site users and display transit information

Essential Services

One path typology will allow the necessary clearance and turning radius for emergency and utility vehicle access

Did I Make The Mistake Of Prioritizing Efficiency Above All Else?

Next Steps

Wellbeing

Emotional

Community Amenities
Restorative Spaces

Socio-Economic

Anti-Gentrification
Low-Income Housing
Provison for Homeless

“My hope for this project is that it will not end here. The real point of my project has been to start the discussion and real design work around car-free cities. I’ve included here those goals which I stated should be addressed, but that I did not address in this project. There are so many more facets of this problem to explore, and so much can be improved just on what I’ve shown in this book. With that in mind my project would truly be a success if someone else sees my work and is inspired to explore it further.”

Transportation

Comfort

Station Design Privacy

Convenience

Smart-City Technologies
Consistency Fare Integration

Viability

Access

Garbage Pick-Up Cargo Delivery
Connection to Hazelwood
Emergency Vehicles

Environmental

Canopy Coverage Photovoltaics
Passive Energy Saving
Material Recycling

Thank You...

Thank You Rob Ribe For Guiding This Project Into Productive Territory!

Thank You To All My Fellows From The MLA Class of 2023 For The Support And Encouragement Through Some Difficult Times!

Thank You Katie And Ophelia For Making Home A Wonderful, Positive Place To Be!

Thank You McClean Gonzales For All The Marathon Work Days And For The Use Of Your Super-Computer!

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Further Reading

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