



Horsh Beirut
harnessing ecology and infrastructure

january 2022

HEINRICH
BÖLL
STIFTUNG
MIDDLE EAST



project background

This project is an initiative by *nahnoo* NGO. This booklet is prepared by a team of consultants in urban design, landscape planning, landscape architecture, green infrastructure, architecture, computational architecture and visual representation, and with assistance from traffic engineers and urban planners and under the leadership of *studiolibani*. This project is under the supervision of *nahnoo* and made possible with the support of *Heinrich Böll Stiftung - Middle East*.

table of content

project statement & project concept3

Horsh Beirut5

project diagram6

circulation diagram8

program diagram10

the master-plan12

chapter 1: Horsh Beirut: the peripheries14

chapter 2: Horsh Beirut: the park25

chapter 3: Horsh Beirut: the equestrian zone43

project credits46

Horsh Beirut re-imagined

project statement

In 2020, the re-imagination of Horsh Beirut is one that is responsive to the myriad of challenges that the city of Beirut faces today. In the process of compiling this project, Beirut underwent a revolution, a global pandemic, an economic recession, as well as an unimaginable explosion that destroyed half of the city. In the re-imagination of Horsh Beirut today, questions on resilience, climatic resilience, social equality, and emergency response are inevitable. We envision Horsh Beirut as an essential infrastructure to the city. We imagine Horsh Beirut (Pine Forest and Hippodrome) as growing beyond its fences and expanding into the neighborhoods as the *Horsh Beirut Biosphere*- a regenerative network that harnesses ecology as well as social, hydrological, and urban infrastructure.

project concept: *Horsh Beirut, harnessing ecology & infrastructure*

In 2020, the Horsh Beirut pine forest shall grow beyond its current fenced area and beyond its original perimeter (1876-1921) to claim public streets and sidewalks and reclaim land encroached by cemeteries and private establishments. This is ‘Horsh Beirut’, a re-imagined novel ecosystem, an infrastructure that serves urban resilience. It serves as a social infrastructure as it is designed for all and offers a range of passive and active, pop-up and long term, as well as group and individual activities. It serves as ecological infrastructure providing ecosystem services that curate water movement, mitigate urban flooding, and enhance biodiversity and micro-climate. It also improves urban connectivity by providing a network of bike-centered and pedestrian-centered pathways. ‘Horsh Beirut’ grows beyond the predominant ethnic and political discourse, towards a holistic environment that urgently addresses the right to equality in the quality of life and well-being of its residents, all inclusive.

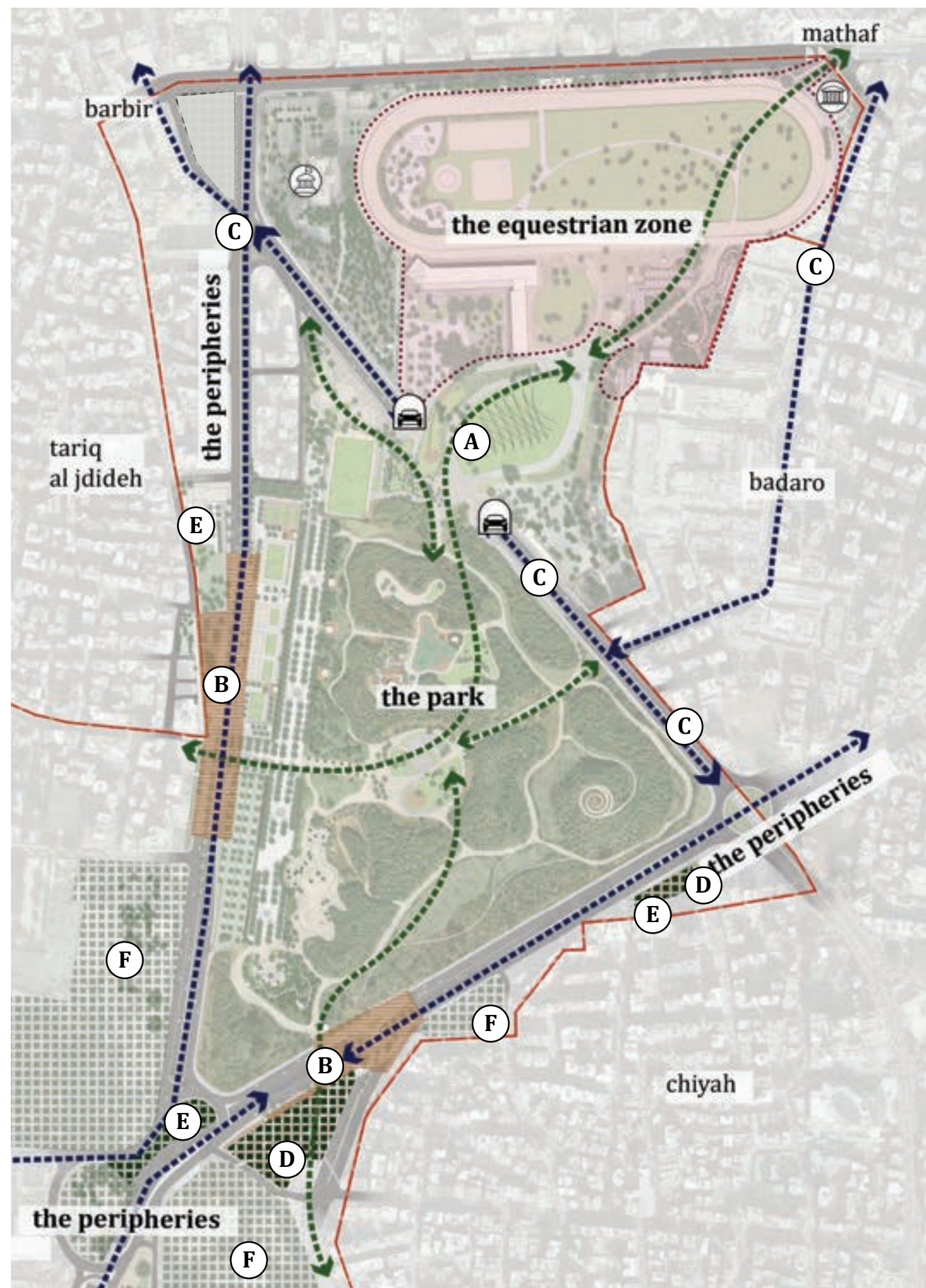
The establishment of the pine forest in the early 17th century was envisioned as a green belt to filter dusty Southern winds before arriving in the settlement. Today, the city faces water quality and quantity challenges, flood risks, overheating, and shrinking open shared spaces, all of which are exacerbated by unregulated urbanization and climate change. The site then takes on a new responsive infrastructural role. To achieve that, our vision does not take a planning and zoning approach, but rather a landscape one focused on a series of pragmatic, simple, low-cost, nature-based regulated and contextualized interventions.

Note: All graphics and visualizations in this document are schematic and reflect the intention and program, not the final design



Horsh Beirut

Georges Mitri - Horsh Beirut



project diagram

project intentions

To achieve the Horsh Beirut Biosphere holistic vision, we propose the following main operations:

- (A) Connect** Pine Forest with the Hippodrome area by integrating a tunnel or underpass along Omar Beyhum St. The connection functions as a pedestrian continuity of the park without disrupting circulation at neighborhood scale.
- (B) Transform** main streets into shared streets at the main entrances of the Pine Forest, i.e along Jamal Abdel Nasser St. and November 22nd St. Shared street typology transforms the road from a vehicle-centered space to a human-focused one. We achieve that by traffic calming tools, like changing the paving finishes, installing speed reduction bumps, and animating the street-scape with pedestrian-related furniture and landscaping. This shared street, a raised surface, also gives an identity to the space, marks important entrances, facilitates pedestrian movement, and enforces traffic control through dedicated drop-off zones and bike stations.
- (C) Inject** green infrastructure along all streets and avenues in the context of Horsh Beirut in the form of bioswales and recessed planted beds to receive impervious surface runoff and manage storm water while providing street greenery. Apply porous paving along sidewalks and under street parking.
- (D) Yield** agricultural produce from the abandoned public lots (or encroaching empty private lots) through the establishment of communal agriculture parks. These parks are equally distributed across the site to ensure engagement of all three neighborhoods: Chiyah, Chatila, and Barbir.
- (E) Grow** Urban Forests in all residual public spaces such as medians or roundabouts or other left-over public spaces. Urban forests are essential to mitigate climate change, restore rainwater, reduce urban temperatures, and enhance urban ecology.
- (F) Reclaim** land that has been encroached on by religious institutions in the form of religious buildings and cemeteries. While removing these structures might not be attainable, we propose an alternative policy that would authorize the municipality to own lands that are currently owned by these institutions in other neighborhoods of the city or suburbs. This exchange would allow the transformation of such lands into pocket parks in their respective contexts.

Horsh Beirut is therefore envisioned as three main zones:

- | | |
|-------------------------------|---|
| 1. The Park | <i>Pine Forest along with the proposed extension towards the Hippodrome</i> |
| 2. The Equestrian Zone | <i>Today's Hippodrome re-designed as an efficient equestrian zone</i> |
| 3. The Peripheries | <i>All interventions outside the boundary of the current Horsh Beirut and that provide social, economic, environmental and ecological value</i> |

legend

- | | | |
|-----------------------------|--|-----------------------|
| tunnel - underpass | shared street | the national museum |
| enhanced park network | urban agro-forestry:
urban forest+agriculture park | la residence des pins |
| enhanced ecological network | privatized land that encroaches on the Horsh Beirut
official limits & is acquired by religious institutions | |



circulation diagram

entrances and access points

Entrances are divided between main entrances generally open to the public and secondary entrances opened during events. Existing main entrances located along Jamal Abdel Nasser and St November 22nd Street are marked with a raised shared plaza. Two new main entrances are proposed along Omar Beyhum St. All Main Entrances are defined with a gate, security booth, a drop off zone and a share bike station. A secondary gate is proposed near the National Museum to emphasize pedestrian connection.

pedestrian and bike circulation

Pedestrian and bike flow within the park is made possible via the existing pathways and the proposed network of primary and secondary pathways. Secondary pathways provide an experiential ride through the park for sport and leisure.

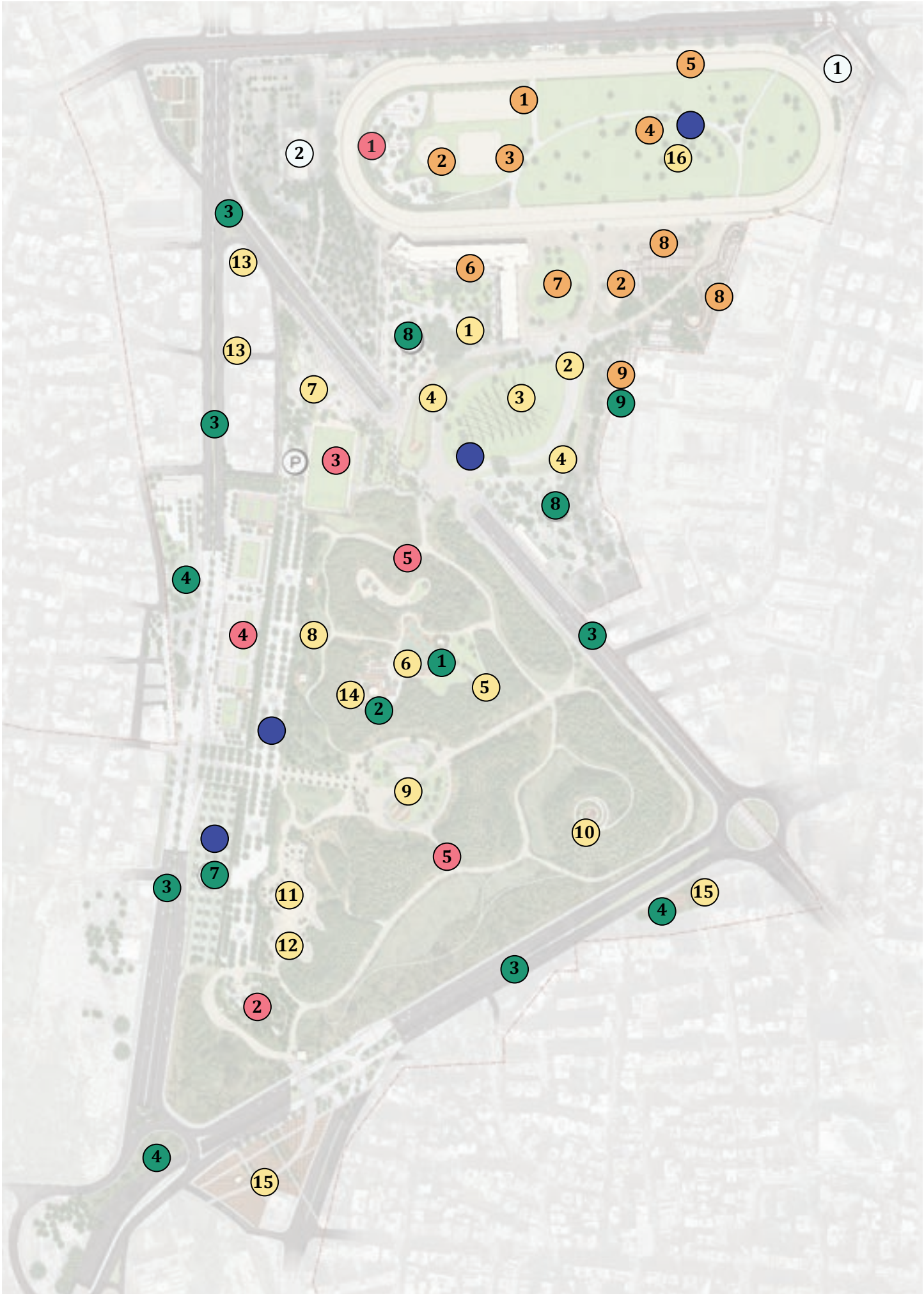
vehicular access and circulation

The general vehicular circulation in the context of the site is maintained. Yet, raised shared street/plazas at the entrances of the Park along November 22nd St. and Jamal Abdel Nasser St. regulate car speed and prioritize safe pedestrian movement and bike circulation. Omar Beyhum street partially transforms into an underpass allowing for a north eastern park extension at street level. Car access to the Equestrian zone is regulated. Food trucks and emergency vehicles are allowed on site via regulated access points.

parking facilities

Vehicular access to the park is restricted to four parking lots . Parking lot along November 22nd St. sets new guidelines to parking design that is based on the principles of green infrastructure. A shade tree is planted every four car spots to ensure reduced urban heat island effect. All median separators are made from bioswales and sunken planted beds that collect surface runoff. Porous paving such as grass-crete carpets the parking surfaces to ensure water infiltration as well as a green surface. Parkings along the Omar Beyhum St. are essentially gravel-carpeted areas, punctured with existing and proposed shade trees. Concrete wheel stoppers define that parking layout that is otherwise perceived as an urban forest and not a standard parking lot.

legend



program diagram

Horsh Beirut has the potential to house a number of programs that vary between social, ecological, economic, physical education, and leisure. Within each zone lies a rich program of social activities. These range between group and individual, pop-up and permanent, as well as passive and active. Ecological programs are not independent from the social ones nor the economic ones. On the contrary, they provide platforms for social activity and for enhanced communal engagement while serving an ecological agenda and enhancing the overall urban environment. All programs are open to individuals from all age groups, backgrounds, and affiliations. The park also aims to engage neighborhood groups, NGO's, neighboring schools and educational nad cultural institutions and organizations. The emergency response program emphasizes the need to have open, pubic, accessible urban space that can be easily used to set up pop-up facilities to provide medical infrastructure or human aid in times of crisis.

legend

- | | |
|--|---|
| <ul style="list-style-type: none">social program1 farm-to-fork outdoor restaurant2 flexible plaza3 central lawn & event plaza (summer-winter)4 hill with viewing deck5 lawn & hammock lounge6 deck & viewing platform7 dog park8 patios in Mediterranean gardens9 central amphitheater (summer)10 pavilion with panoramic overlook11 picnic & bbq area12 outdoor cafe & fire-pit lounges13 kids' play area14 eco-lab community center15 community urban agriculture gardens16 pop-up annual events & festivals | <ul style="list-style-type: none">equestrian program1 obstacle training zone2 8-horse walker3 training zone4 pasture5 race track6 administrative building with amenities7 play zone8 stables & horse amenities9 barn for sheep |
| <ul style="list-style-type: none">sports & leisure program1 sports arena (calisthenics outdoor gym, etc)2 skate park3 neighborhood football field4 tennis, basketball & mini football courts5 walking, jogging, & biking routes | <ul style="list-style-type: none">ecological program1 constructed wetland2 eco-lab (experimental agriculture)3 bioswales4 urban forest5 urban productive garden & urban bee-keeping6 administrative building with amenities7 porous parking8 forest parking9 urban grazing |
| <ul style="list-style-type: none">1 the national museum2 la residence des pins | <ul style="list-style-type: none">emergency response programspace flexibly serves for pop-up clinics, medical response tents, testing tents, first-aid units, resource distribution centers, and other emergency response infrastructure |



- ① hippodrome
- ② equestrian facilities
- ③ sports arena
- ④ outdoor farm-to-fork restaurant
- ⑤ central lawn & plaza
- ⑥ forest parking
- ⑦ skate park
- ⑧ dog park
- ⑨ hammock lounge
- ⑩ wetland & deck
- ⑪ eco-lab & community pavilion
- ⑫ central amphitheater
- ⑬ pavilion w/panoramic outlook
- ⑭ picnic area
- ⑮ outdoor cafe & lounge
- ⑯ kids' play area
- ⑰ formal alley
- ⑱ Mediterranean gardens w/patios
- ⑲ sports lane w/ amenities
- ⑳ parking lot
- ㉑ shared street
- ㉒ drop offs & shared bike stations
- ㉓ tunnel & overpass
- ㉔ community agriculture park
- ㉕ urban forest
- a the national museum
- b la residence des pins



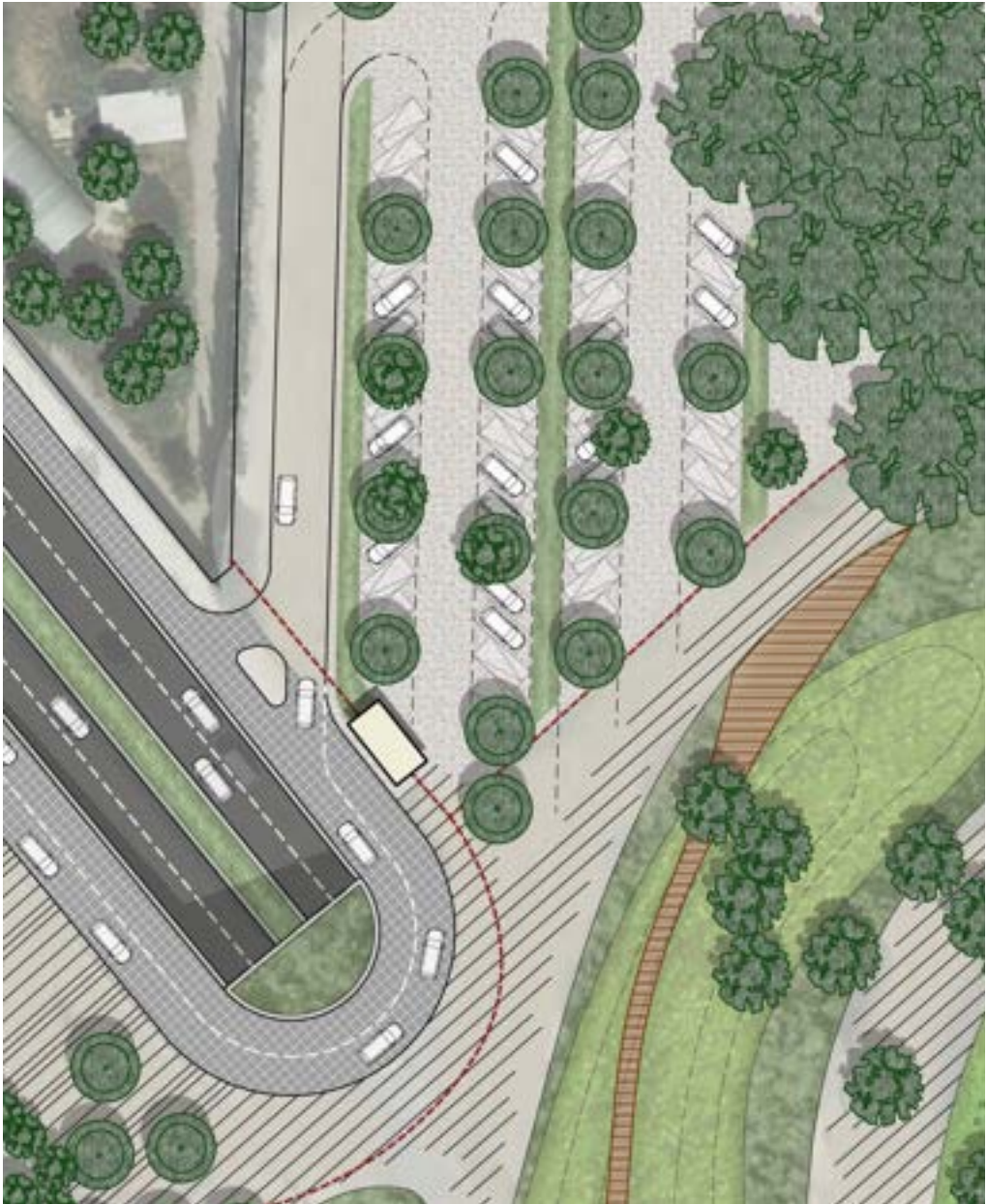
1

Horsh Beirut:
the peripheries

plaza along Omar Beyhum St.



The partial transformation of the Omar Beyhum St. into an underpass allows a natural expansion of the park towards the Hippodrome. This necessitates access points with drop offs and bike stations on either end . The drop-offs meet at a central plaza surrounded with grass hills and pines as a visual continuation of the current Pine Forest. Two parkings are situated, one on each drop-off, together fit over 100 cars. The design of the parking is minimal maintaining the forest typology while concrete wheel stoppers define individual car spots.



Scale 1-750

shared plaza along jamal abdul nasser st.



- Scale 1-1500
- ① agriculture forest park

② shared street

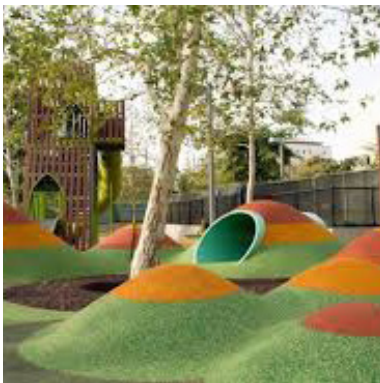
③ main entrance

④ drop-off + shared bike station

⑤ extension above existing tunnel

the kids' playspace

Access to open play spaces is a right to the kids of Beirut. Abandoned or currently un-programmed public spaces in the periphery of the Horsh present an indispensable opportunity to respond to this need. Accordingly, this project suggests the transformation of such lots along November 22st St. into pocket play parks for the community, easily and safely accessed from the direct neighborhoods of the Horsh.



Scale 1-750





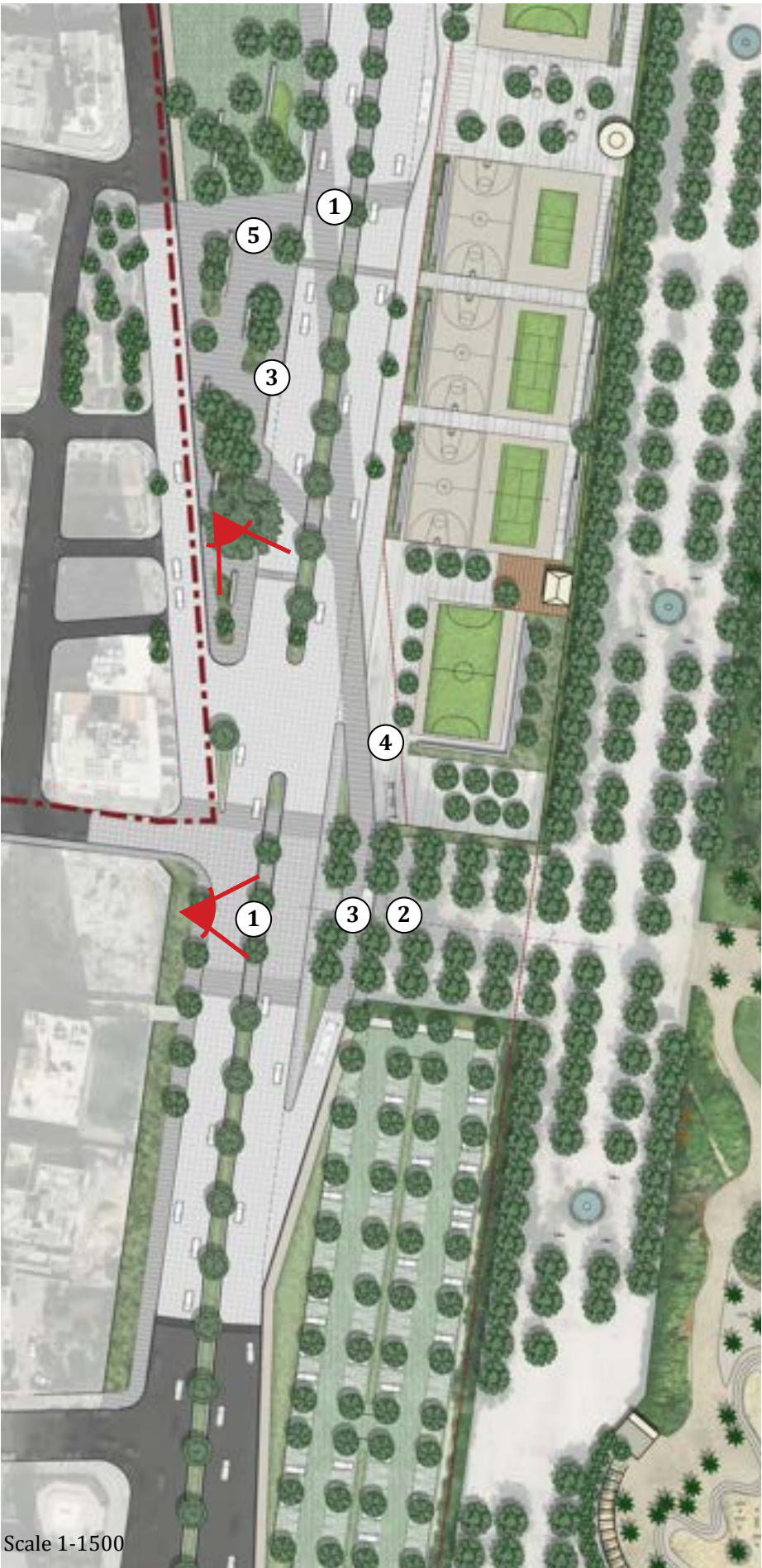
General View of the Shared Street looking from the Agriculture Park: Paving patterns animate the ground surface blurring the edge between car zone and pedestrian zone



Bird's view of the Main Entrance: greenery flows uninterrupted between park and street, taking on the form and function of green infrastructure

Horsh Beirut: the peripheries

shared plaza along November 22 st.



- ① shared street
- ② main entrance
- ③ drop-off
- ④ shared bike station
- ⑤ agriculture park

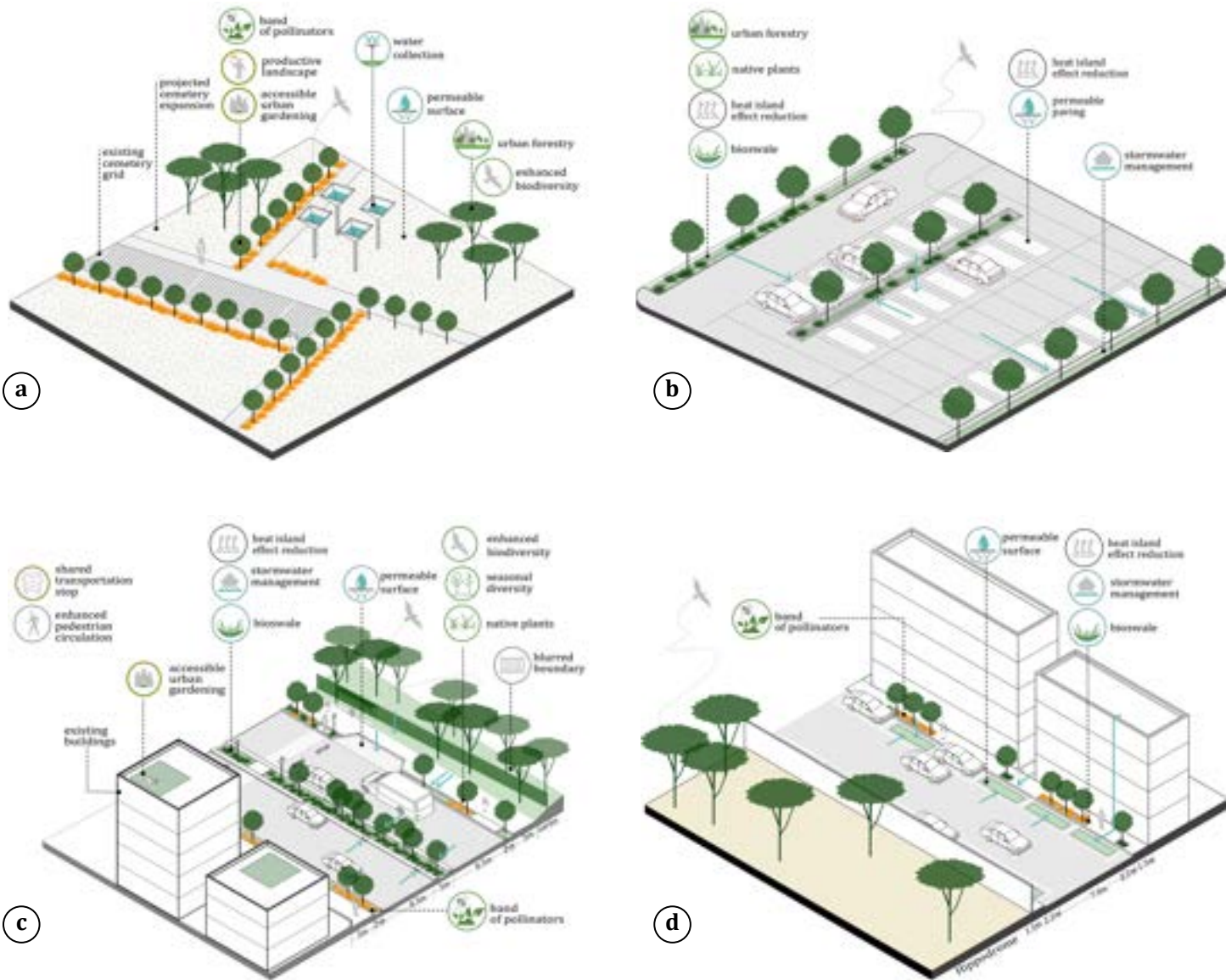
Scale 1-1500

The establishment of the pine forest in the early 17th century was envisioned as a green belt to filter dusty Southern winds before arriving in the settlement. Today, the city faces water quality and quantity challenges, flood risks, overheating, and shrinking open shared spaces, all of which are exacerbated by unregulated urbanization and climate change. Horsh Beirut now takes on a new responsive infrastructural role by deploying green infrastructure along sidewalks, streets, avenues, medians, residual public spaces, parking lots, etc... These interventions are low-cost, highly efficient, reversible applications that mitigate urban flooding, collect rainwater, increase porous surfaces, increase green cover, and therefore reduce urban temperatures and enhance outdoor comfort.

diagram:
infrastructure strategies as applied on typologies identified in the peripheries of Horsh Beirut

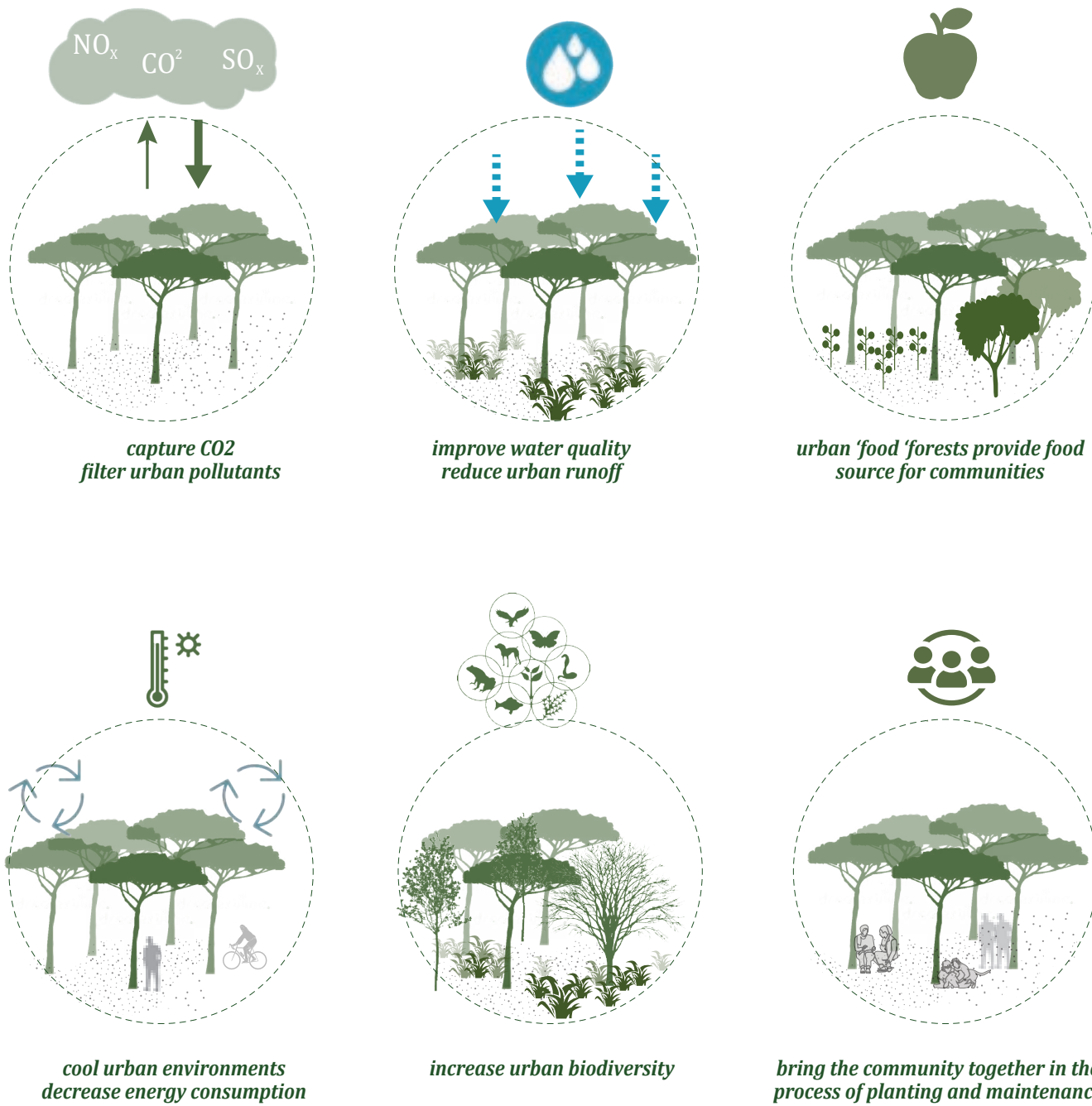
We identify a series of existing conditions along the peripheries of the current Horsh Beirut. These include: (a) cemeteries ; (b) parking lots; (c) avenues with wide sidewalks and medians; private rooftops (d) side streets with street parking.

We apply green infrastructure typologies fit for each of the identified conditions. These include bioswales, retention ponds, water tanks, porous paving, bands of pollinators, shade trees, productive trees as well as green roofs.



Urban forestry in a city like Beirut has the potential to mitigate climate change, namely extreme weather events and water crisis, by providing ecosystem services. Studies have shown that urban forestry, the project and the process, also enhances urban ecology as well as the socio-economic status of the city. Horsh Beirut plays a vital role in Beirut, by acting as a carbon sink, filtering pollutants, improving water and soil quality, and cooling urban environments, all of which are essential ecosystem services today. We envision a larger and more ecologically comprehensive role whereby all residual spaces, roundabouts, small public spaces, medians, etc are planted by the community and transformed into urban forests. This process can be achieved via several forestry methods, such as The Miyawaki method.

diagram:
some benefits of urban forestry





2

Horsh Beirut:
the park



Urban Forest Densification - climate resilience and social inclusion

Horsh Beirut plays a vital role as ecological infrastructure in Beirut today, by acting as a carbon sink, filtering pollutants, improving water and soil quality, and cooling urban environments, all of which are essential ecosystem services. We envision a larger and more ecologically comprehensive role whereby the existing dominantly Pine forest is diversified with broadleaf trees, as well as fruit-bearing trees, such as the Judas Tree, Carob Tree, Wild Almond, Pistachia Trees, and Strawberry Tree. This forest densification process can be achieved via several methods, such as The Miyawaki method. Using native trees that are planted close to each other (2-4 trees/sqm), the plants grow 30 times denser and 10 times faster, resulting in a multi-layered canopy that is self-sustaining.

diagram:
environmental benefits of urban forestry

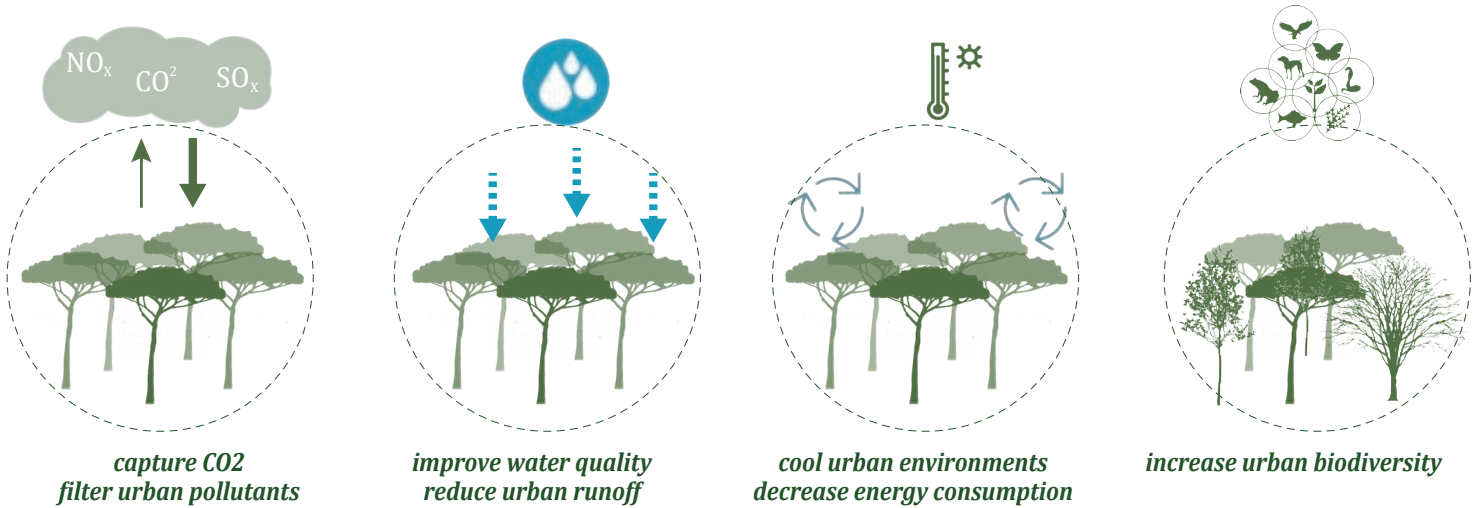
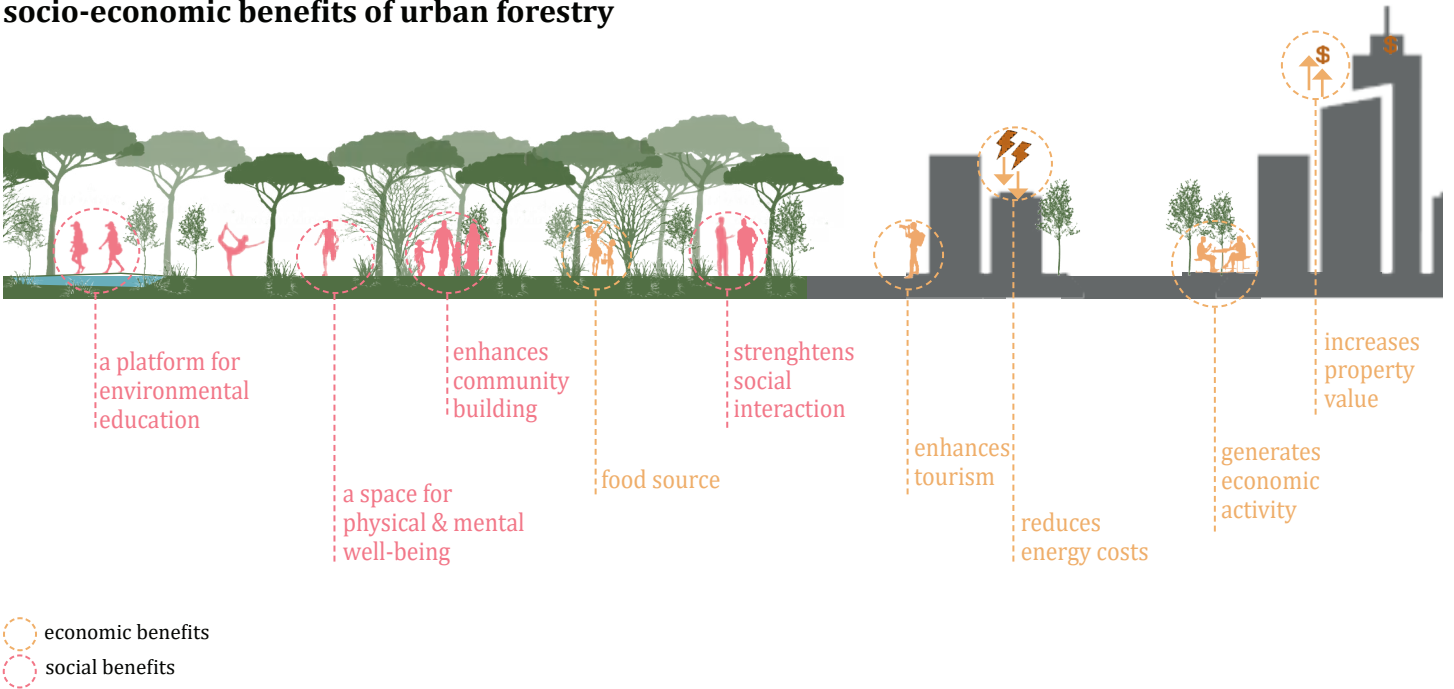


diagram:
socio-economic benefits of urban forestry



the amphitheater

In the heart of the park is a sunken amphitheater. It functions as a venue for small events and can grow to accommodate a larger crowd. The amphitheater is a minimal interventions in the landscape, with ground-cover and shade trees allowing for day and night functions. The amphitheater is reached via the existing linear walkway from November 22nd street and is surrounded by light modular structures than can function as kiosks.

- 1

existing alley
- 2

plaza
- 3

modular kiosk
- 4

sunken amphitheater;capacity 1400 persons
- 5

sunken amphitheater;capacity 2100persons



General view of the sunken amphitheater, representative of the intetion



Flexibility of installing stage structures for music events and concerts

the pavilion

At the highest point of the park, perched on a hill of pines and wild grasses, sits a round wooden pavilion. This light architectural feature provides a viewing platform capturing panoramic views beyond the park and towards the city. A secondary path of crushed gravel branches from the main walkway and leads you on an urban hike all the way to the pavilion. From there a staircase in wood revolves upwards for a further elevated spectacular experience of the city and the forest.



Scale 1-750



Close up view of the wood pavilion, at once a viewing platform and a social space



Looking towards the pavilion, perched on the highest hill in the park

the wetland

At the lowest point of the park, an area that is normally flooded with rain water, sits a constructed wetland. Its primary function is to retain and store all the rainwater. Designed in three basins, water overflows from one to the other while being naturally purified. The wetland provides a micro-climate and further enhances the urban biodiversity. A wood deck floats across the wetland transforming a presumably ecological intervention into a social one.



Standing on the deck and overlooking the wetland ecosystem with the pine hills in the background



Looking across the constructed wetland towards the eco-lab, an educational, social, and ecological platform

the skatepark

Sitting amongst the stands of pine trees is the Snoubar Skatepark (2021), a recently completed project, a collaboration between international NGO Make Life Skate Life and the local Lebanese Skateboarding Association. The space brings together the skating community and also offers classes for refugees from the Shatila Refugee Camp.



the sandpit

The existing sandpit originally intended as a kids play space by design is preserved for its iconic form and finishes. What we propose is a light, reversible intervention in the form of colorful flexible seating, casual lounges, picnic tables along with picnic area. These areas can be served from the existing kiosk or from a pop-up cafe structure that can also be rotational based on the agreement with the park operator.



Scale 1-750

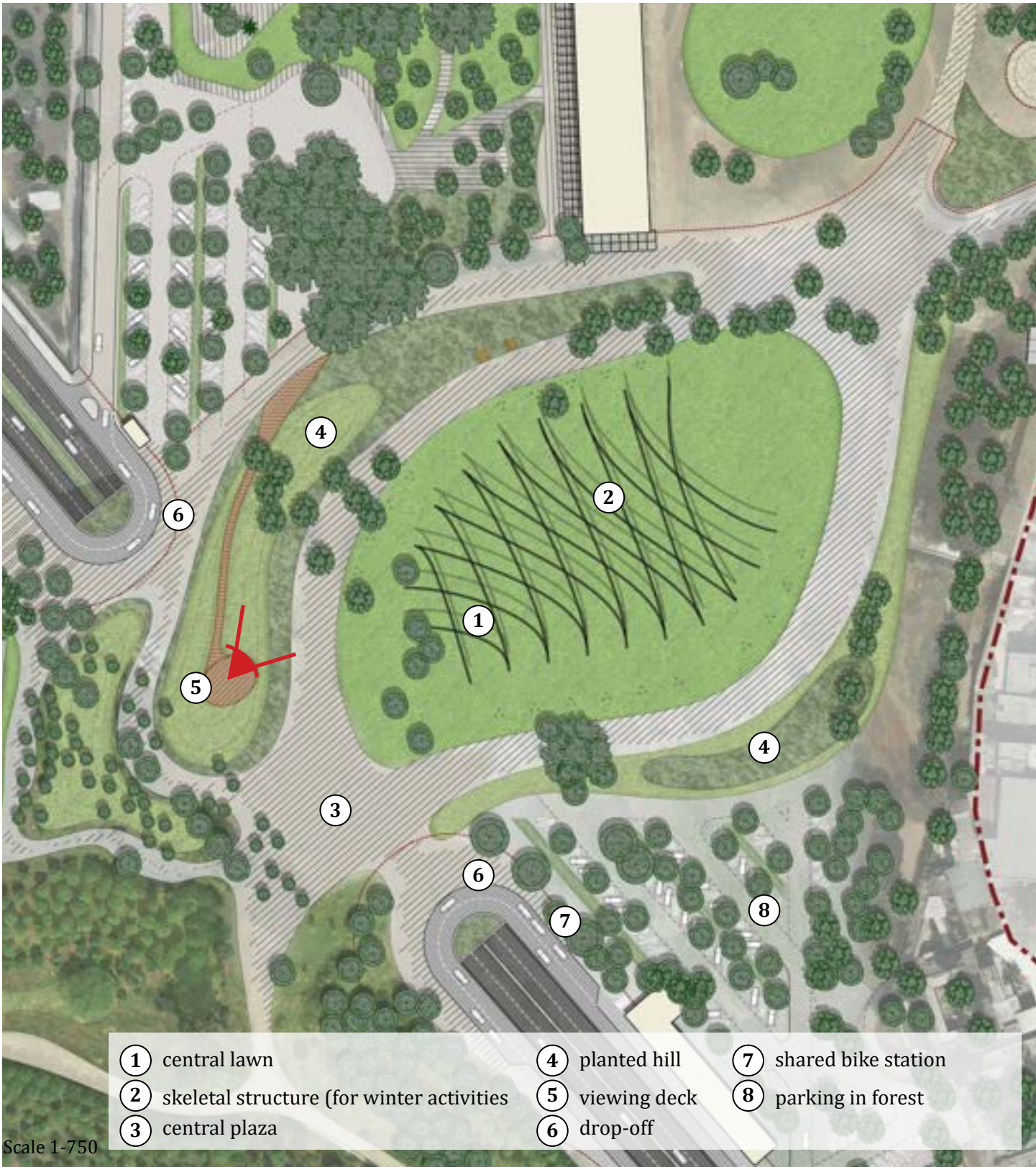
the linear park: the sports lane + the formal alley + the Mediterranean gardens

The existing formal alley lined with mature ficus trees and punctual water fountains is preserved for its iconic character. It can host weekend events like flower market & farmers’ market. The existing sports lane is also preserved and enhanced with modular structures that house bathrooms, showers, and kiosks. Adjacent to that, we propose the relocation of the Mediterranean garden and wooden patios which currently exist in the center of the park. This is a destination for secluded activities private functions, elderly meet-ups, or even group meditation.



the central lawn - plaza

The central lawn is the single most open public lawn space in the city. It is a day and night attraction. We imagine this space as a flexible venue for a number of activities. Food trucks for food festivals, concerts, group meditation, and sculptural art installations among others. The skeleton on the lawn casts shadow patterns in the summer and can be covered to host indoor events in the winter. The central lawn is easily accessible. It is embraced with planted hills on either end isolating it from the hustle of the city.



The walkways around the central lawn create a continuous paving pattern that unifies the drop-off plazas with the central space and gradually fades out towards the equestrian zone.



View of the Central Lawn with the skeletal structure taking center stage.



Examples of the activities that can be flexibly hosted on the Central Lawn: rotational art installations, chess board, concerts, food truck festival, lounging on lawn, and farmers' market

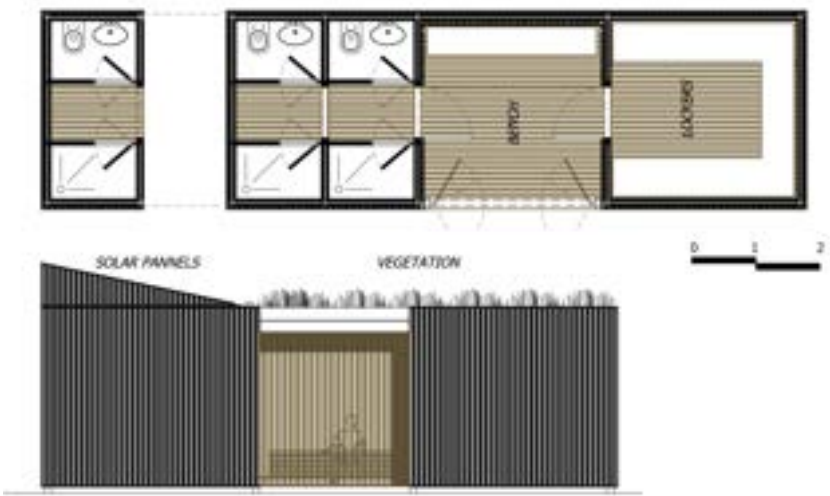
Horsh Beirut: the park

modular structures as public amenities

Modular structures constructed in steel and wood are conveniently distributed across the park to serve a number of functions: kiosk, cafe, information booth, bike rack shelter, W/C, showers with lockers, etc...



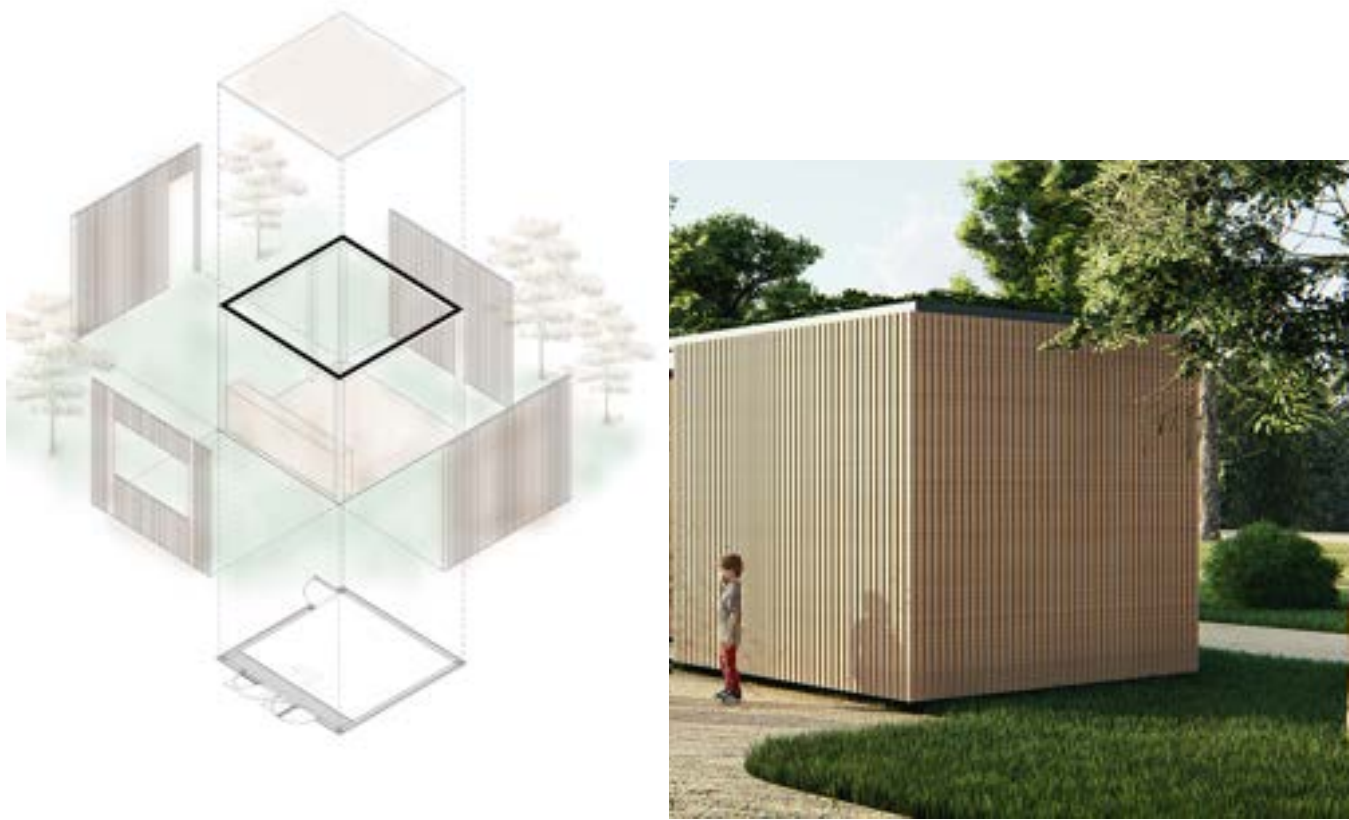
View of the sports cabin. It houses lockers and showers and is equipped with solar panels on the roof



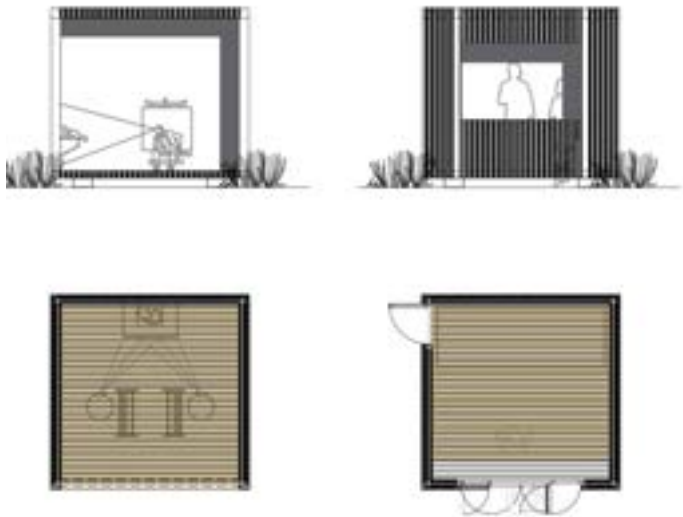
Plans, elevations, and floor plans of the different module configurations populating the park

modular structures : catalogue

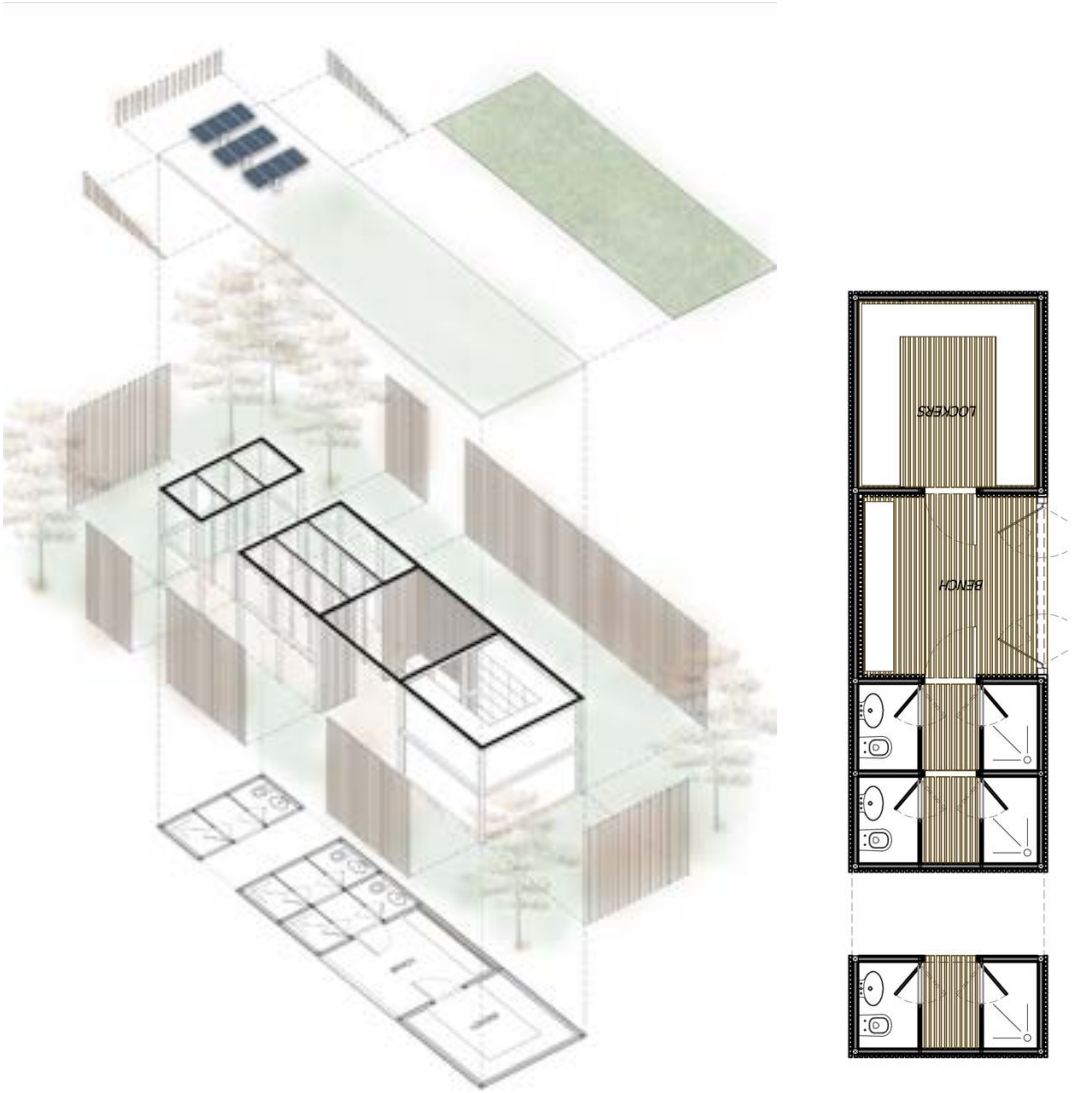
Modular structures can be expanded off of the unit module, a square. As shown in the images below, the design is flexible, expandable and portable. The roofs of these modules is are times equipped with solar panels and at times with vegetation, depending on the function served inside.



Isometric view of the sports cabin showing floor plan, wood and steel structure, and roof



Plans, elevations, and floor plans of the different module configurations populating the park



Isometric view of the kiosk cube with four fixed steel structures and a large window for service



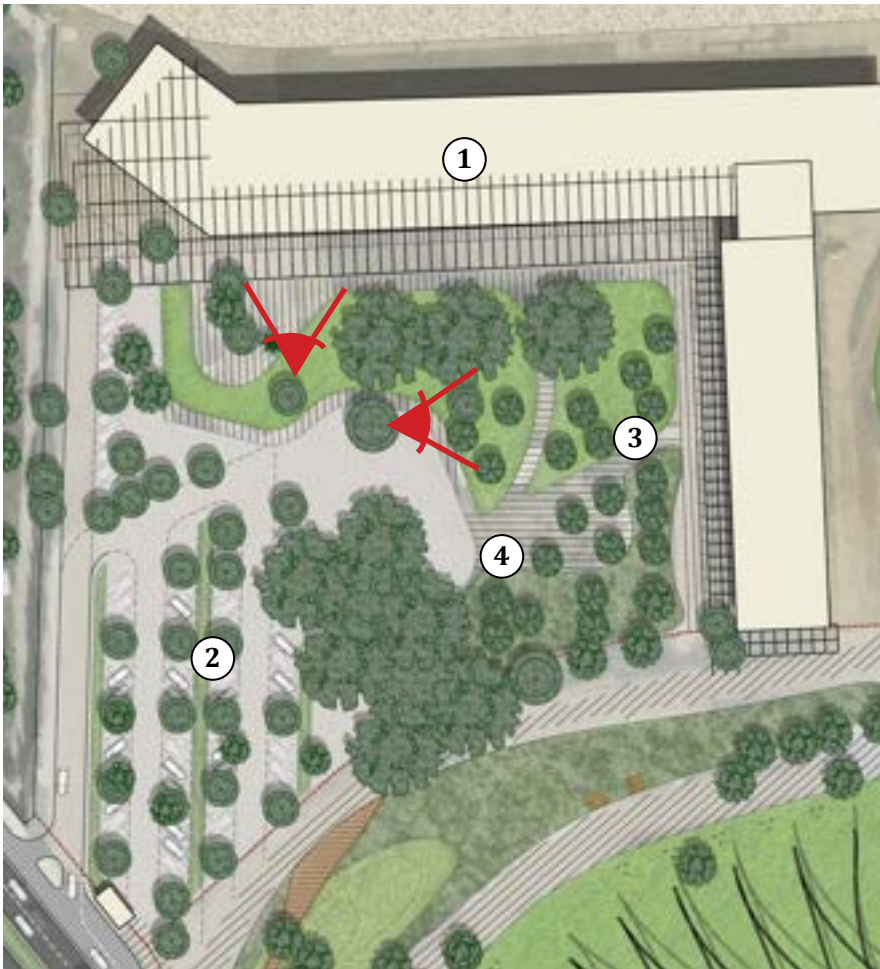
Plans, elevations, and floor plans of the different module configurations populating the park



3

Horsh Beirut:
the equestrian zone

the equestrian zone



In the Hippodrome, the horse race track is maintained, the pasture is also preserved for horses and as a venue for events. The equestrian zone is redesigned for optimized efficiency. It houses all necessary horse-related facilities. In addition, the existing building is refurbished with a green skin. It houses a clubhouse and bar on the inside as well as a farm-to-fork restaurant setup outside.

- ① hippodrome main building
- ② parking in forest
- ③ outdoor farm-to-fork restaurant
- ④ urban agro-forestry
- ⑤ horse training zone + playground
- ⑥ stables + amenities
- ⑦ 8-horse walker
- ⑧ sheep barn (for urban grazing)



View of the Hippodrome existing Main Building designed to house a bar, gym, and clubhouse for the clientele of the Equestrian Zone, besides its current administrative role.



View of the front outdoor space of the existing Main Hippodrome Building hosting an amphitheater and an organic farm-to-fork restaurant

the sports arena



An outdoor sports arena on the far Western edge of the horse race track is a sports platform for cross fit body building, calisthenics, group Pilates a cafe, jogging trail and pin pong arena



While existing in proximity to the allocated horse training zones, this area is occupied on a schedule that does not overlap with the horse training schedule as to not cause inconvenience

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Beirut January 2022

