"ON THE MOVE"

Re-imagining Milan's Central Station

Fabio Sala

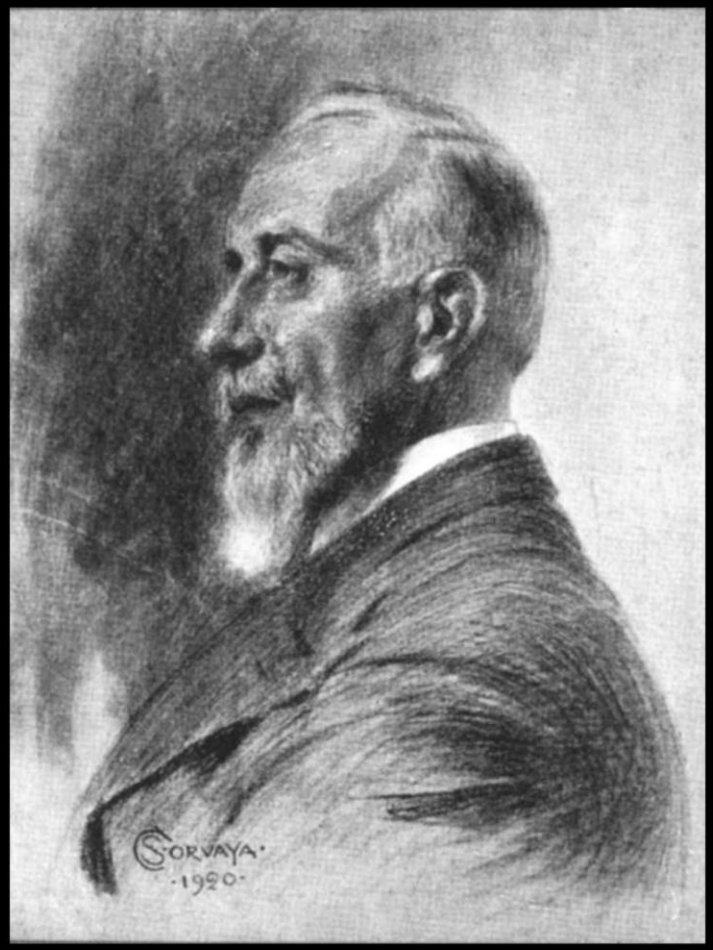
STUDIO ASSIGNMENT

STUDIO ASSIGNMENT

THESIS TOPIC

How can Milan's Central Station evolve into a **dynamic hub** that balances **modes of transportation** with **cultural activities**?

ULISSE STACCHINI



"Ulisse Stacchini"
Corvaia Salvatore, Drawing, 1920

"Stazione Centrale di Milano"
Opening on 1st July 1931

"IN MOTU VITA"

"LIFE IS IN·MOTION"

"Stazione Centrale di Milano"
Opening on 1st July 1931

ITALIAN FUTURISM

"La città che sale"
Umberto Boccioni (1911)

ITALIAN FUTURISM

"La carica dei lancieri"
Umberto Boccioni (1915)

ITALIAN FUTURISM

"Stati d'animo 01 Gli addii"
Umberto Boccioni (1911)

OVER THE YEARS

1931

Out of inadequacy, Milan Central Station gets rebuild with U. Stacchini

1940s

Poor accessibility of the tracks, inadequacy of services

1953

Installation of escalator system to connect the different levels

1970s

Metro underground expansion, Centrale FS connecting M2 and M3

1980s

Structural renovation for increased regional and international train traffic

2005 - 2010

Modern renovation of railway tracks, structural reinforcement & retail addition

WHAT IF?

BUILD TO LAST

WHAT IF?

BUILD TO ~~LAST~~ EVOLVE

*WHAT DOES IT MEAN TO DESIGN THE BUILDING FOR ITS **EVOLUTION**?*

TRANSITION DESIGN

"Design the trajectory between today and future scenarios, addressing possible opportunities along the way"

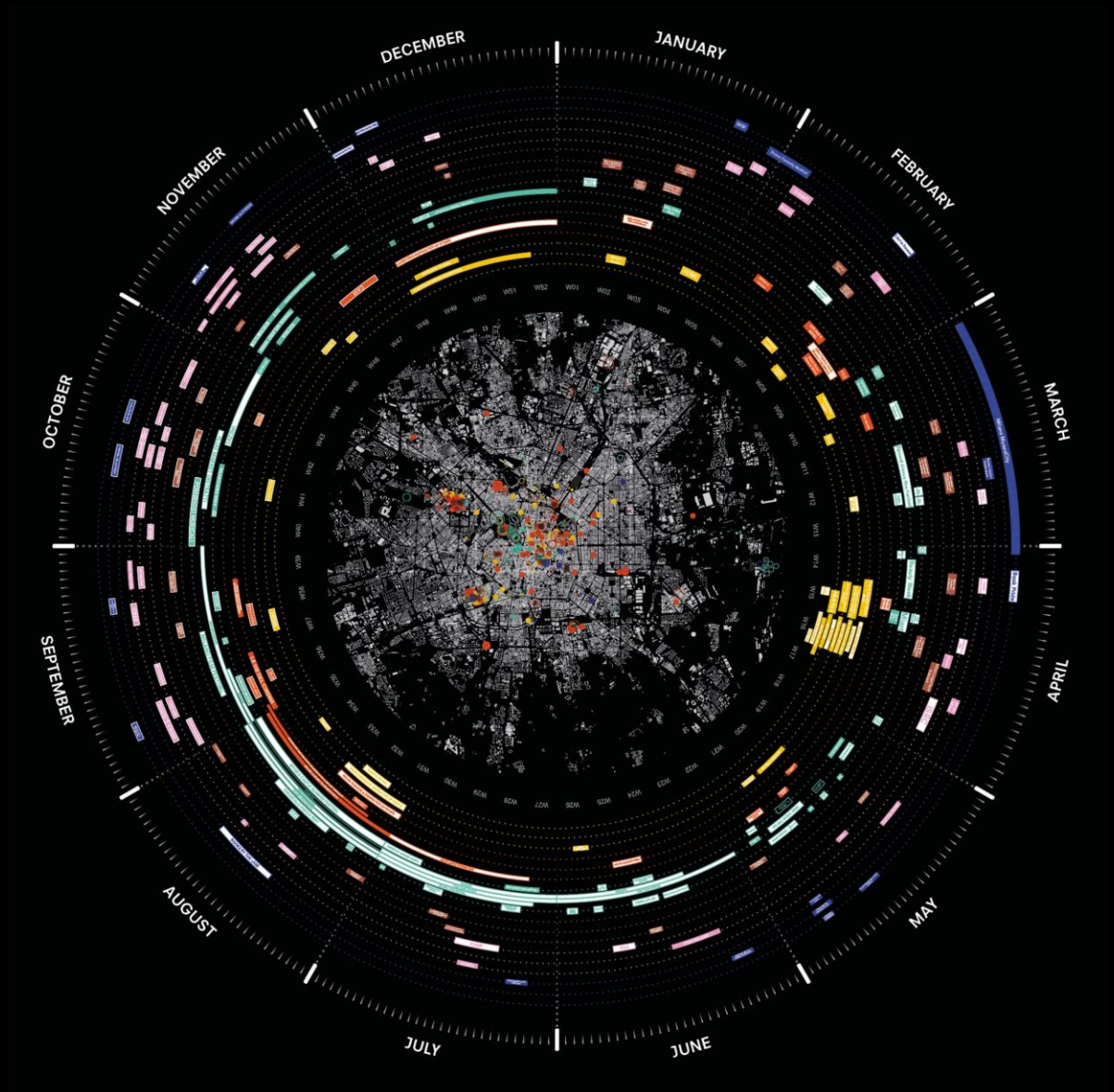
THE TRAIN STATION WILL BE...

FLEXIBLE	RESPONSIVE	SCALABLE
in program	to its enviroment	over time

CONTEXT

IN MILAN?

A YEAR IN CULTURE



CITY OF TEMPORALITY

CITY OF TEMPORALITY

MIART WEEK

CITY OF TEMPORALITY

FASHION WEEK

WHAT IF WE ALLOW CULTURE IN THE STATION?

HISTORICAL TRAMS

ATMOSFERA

TRAMITO

WEDDING TRAM

DISCO TRAM

TRAM LUCE

BAGGIO DEPOT

FROM...

...TO

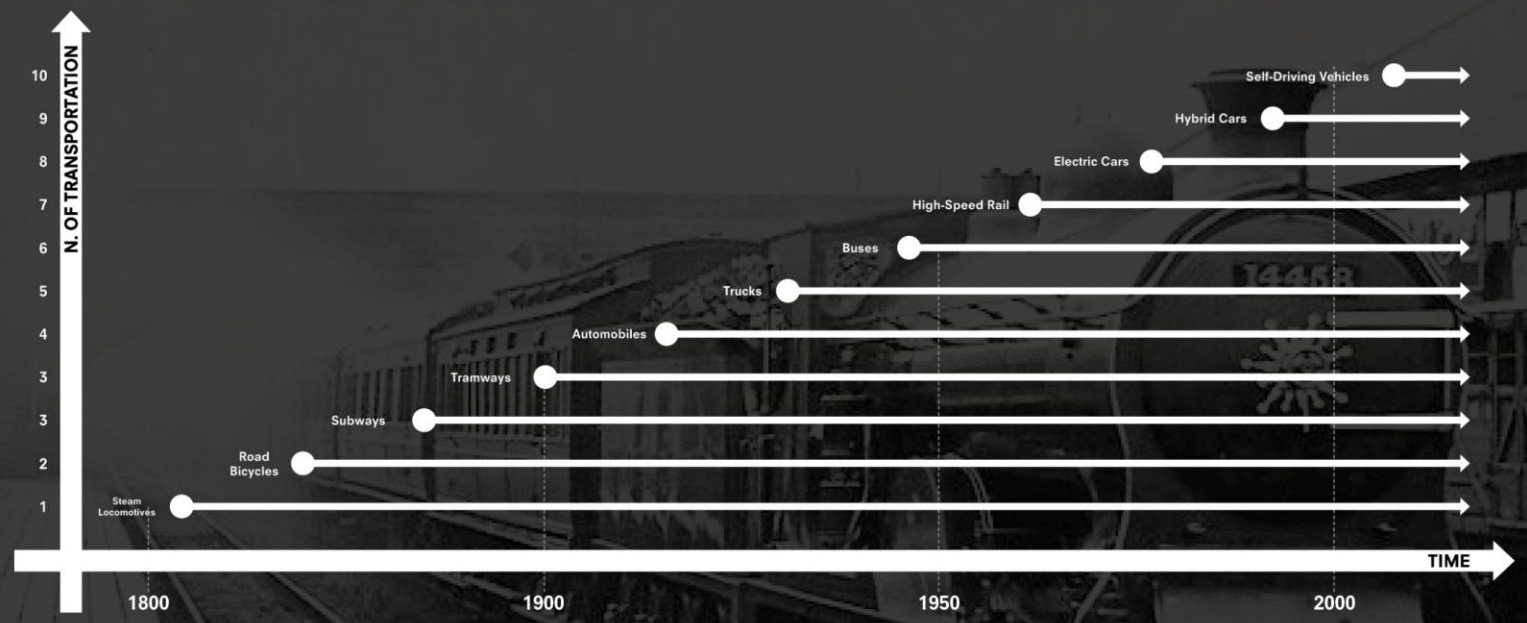
FROM...

...TO

RESEARCH QUESTION

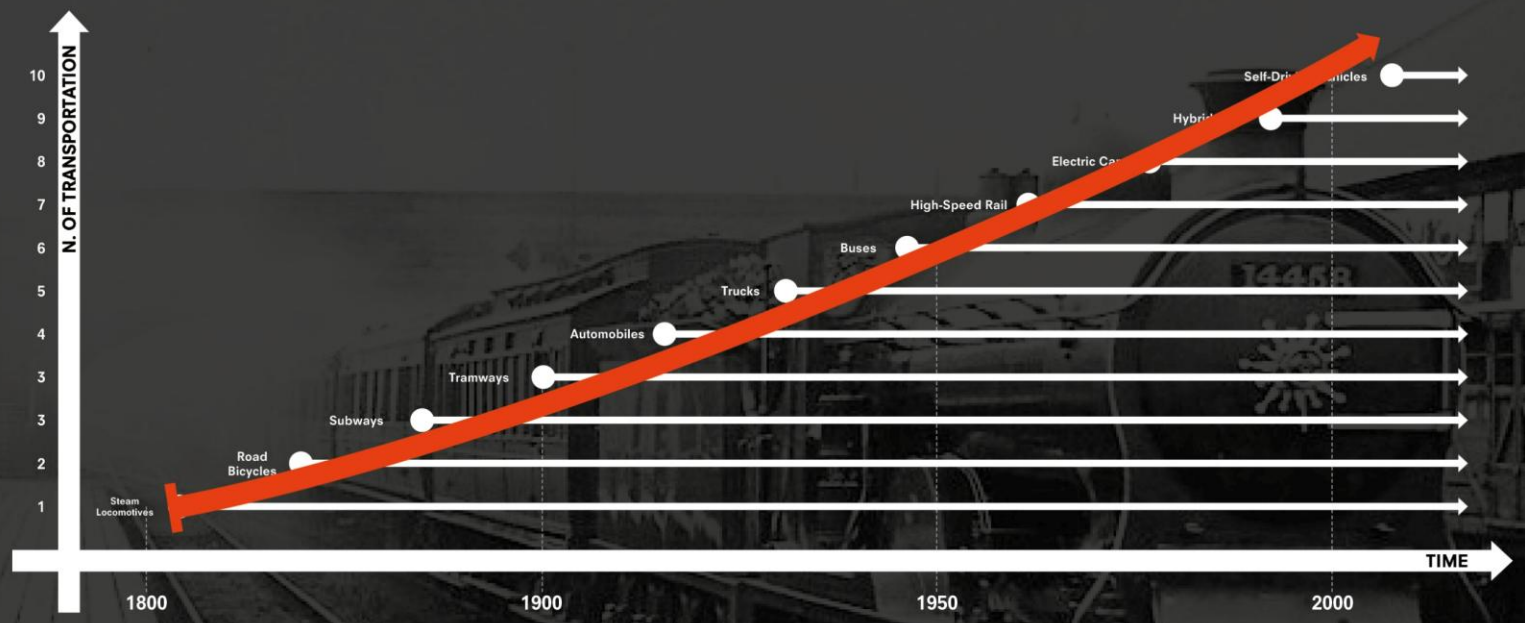
How can a train station be transformed into
to a flexible, responsive, and scalable hub
that addresses the evolving cultural demands of Milan?

TYPOLOGICAL EVOLUTION



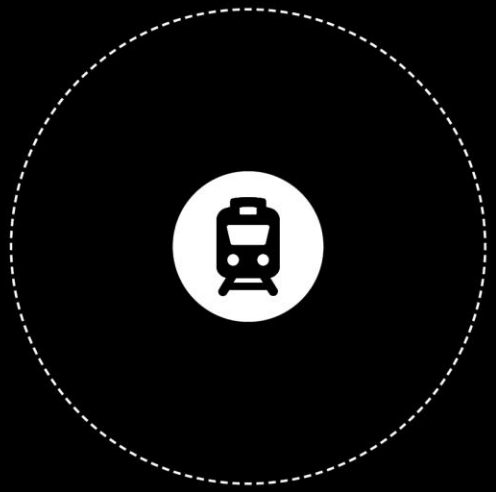
Source: Transportation Geography

TYPOLOGICAL EVOLUTION

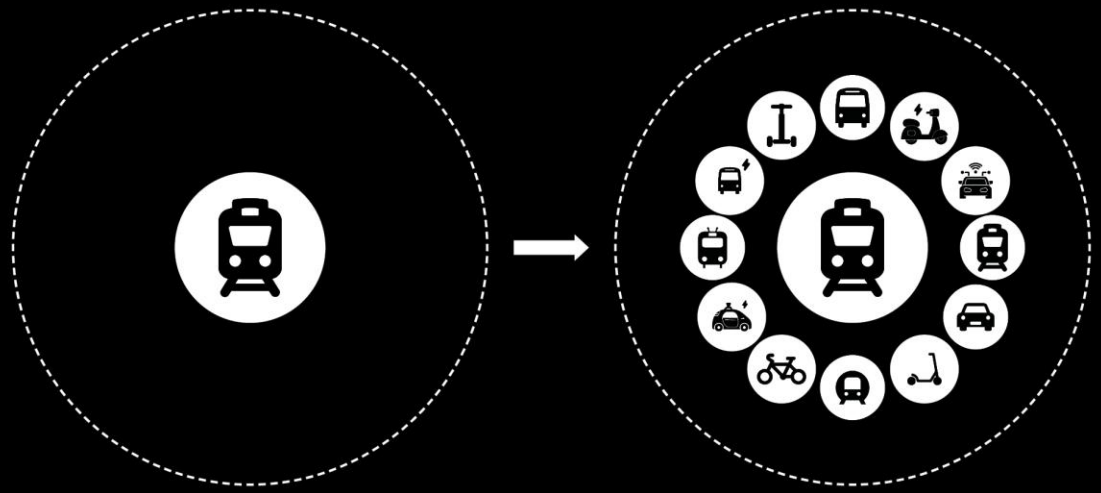


Source: Transportation Geography

FROM ONE...



...TO MANY



THE NEXT STEP

PROGRAM

SOFT PROGRAM	HARD PROGRAM
"humans"	"vehicles"

PROGRAM

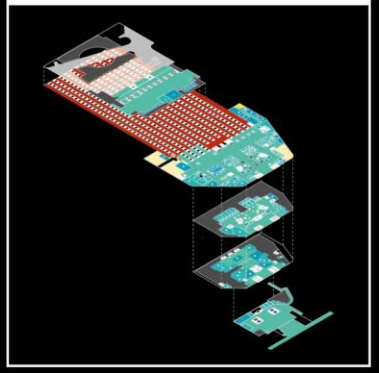
SOFT PROGRAM
"humans"

HARD PROGRAM
"vehicles"

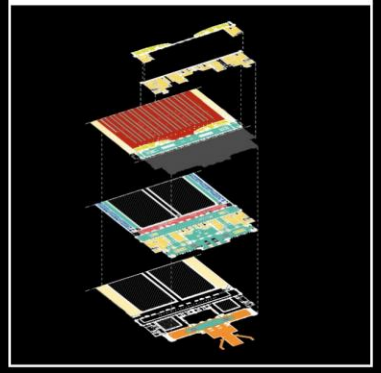
CULTURE AS A MEDIUM

CASE STUDIES

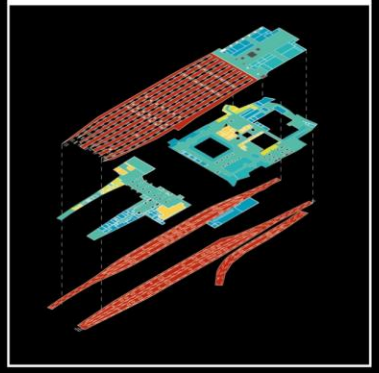
GARE DU MONTPARNASSE



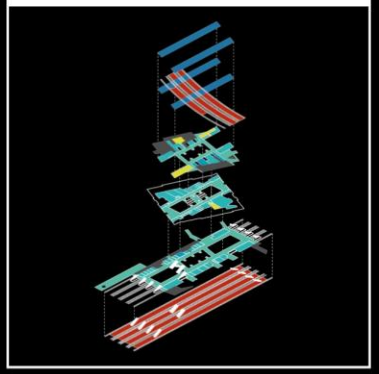
MILAN CENTRAL STATION



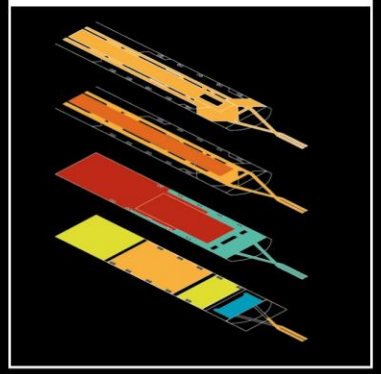
ZÜRICH HAUPTBAHNHOF



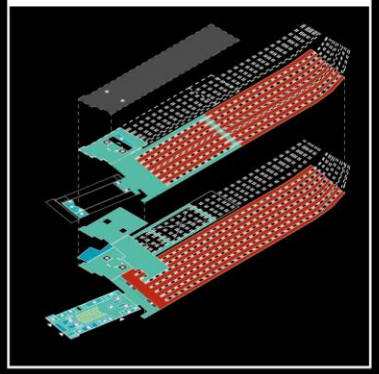
BERLIN HAUPTBAHNHOF



NEW "CITY" OF MILAN



MADRID ATOCHA STATION



CASE STUDIES

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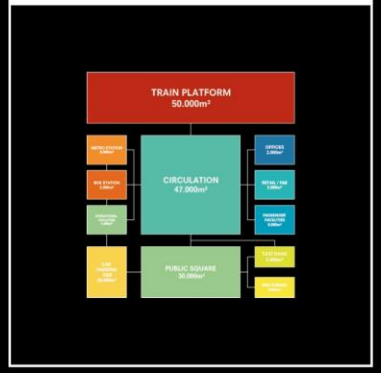

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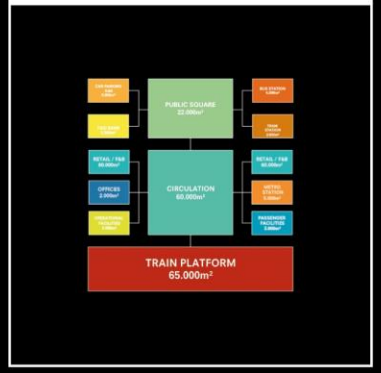

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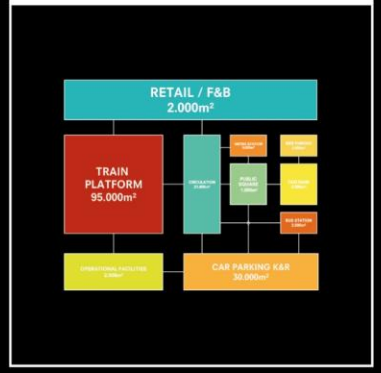

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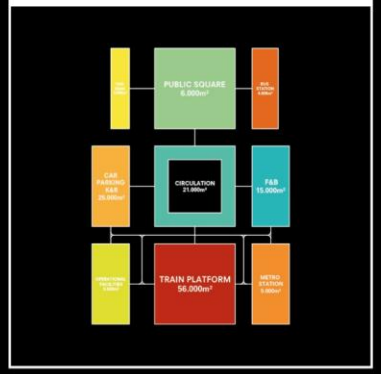

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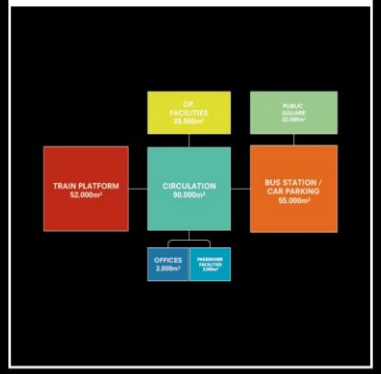

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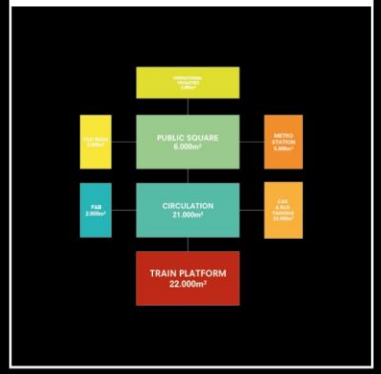
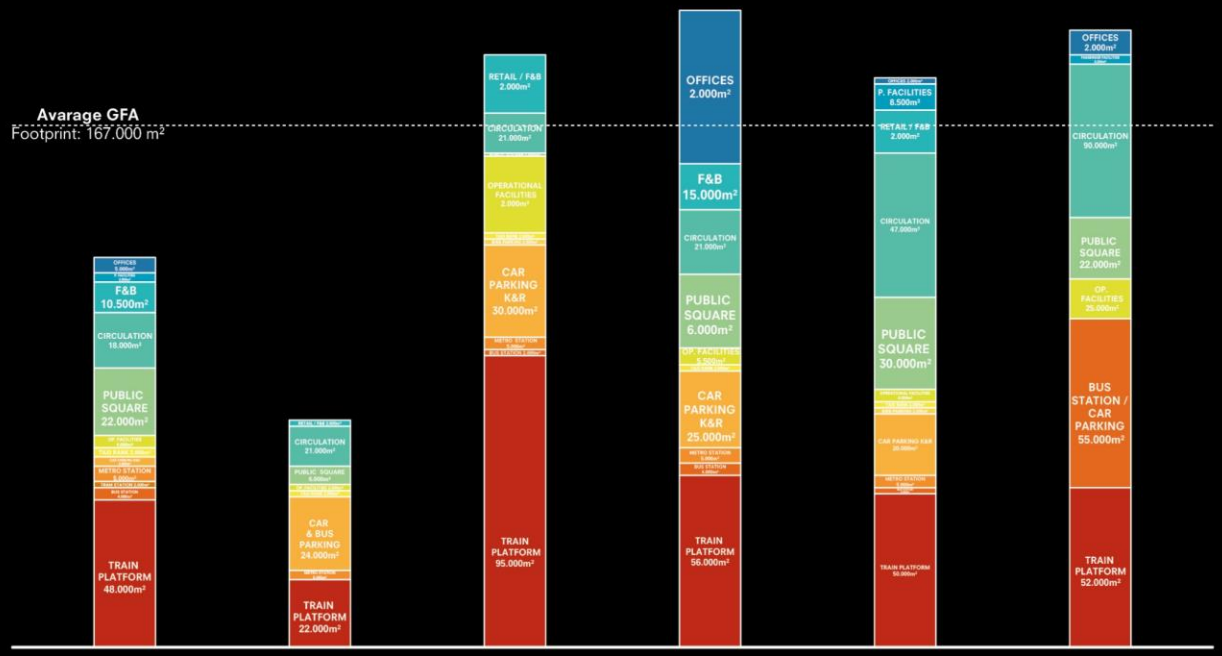


CASE STUDIES



MILANO CENTRALE

Total GFA: 142.000 m²
Flux: 320.000 p/day

MADRID STATION

Total GFA: 74.000 m²
Flux: 100.000 p/day

ZURICH HB

Total GFA: 193.000 m²
Flux: 500.000 p/day

BERLIN HBT

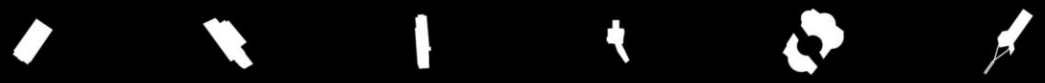
Total GFA: 207.500 m²
Flux: 300.000 p/day

GARE MONTPARNASSE

Total GFA: 185.000 m²
Flux: 320.000 p/day

C. MORETTI

Total GFA: 201.000 m²
Flux: //



PROGRAM


Offices
Pass. Facilities
Retail
10.500m²
Circulation
18.000m²
Public Plaza
22.000m²
Op. Facilities
Taxi
Car Parking & Drop-Off
Tram Station
Metro Station
Bus Station
Train Pl.
55.000m²

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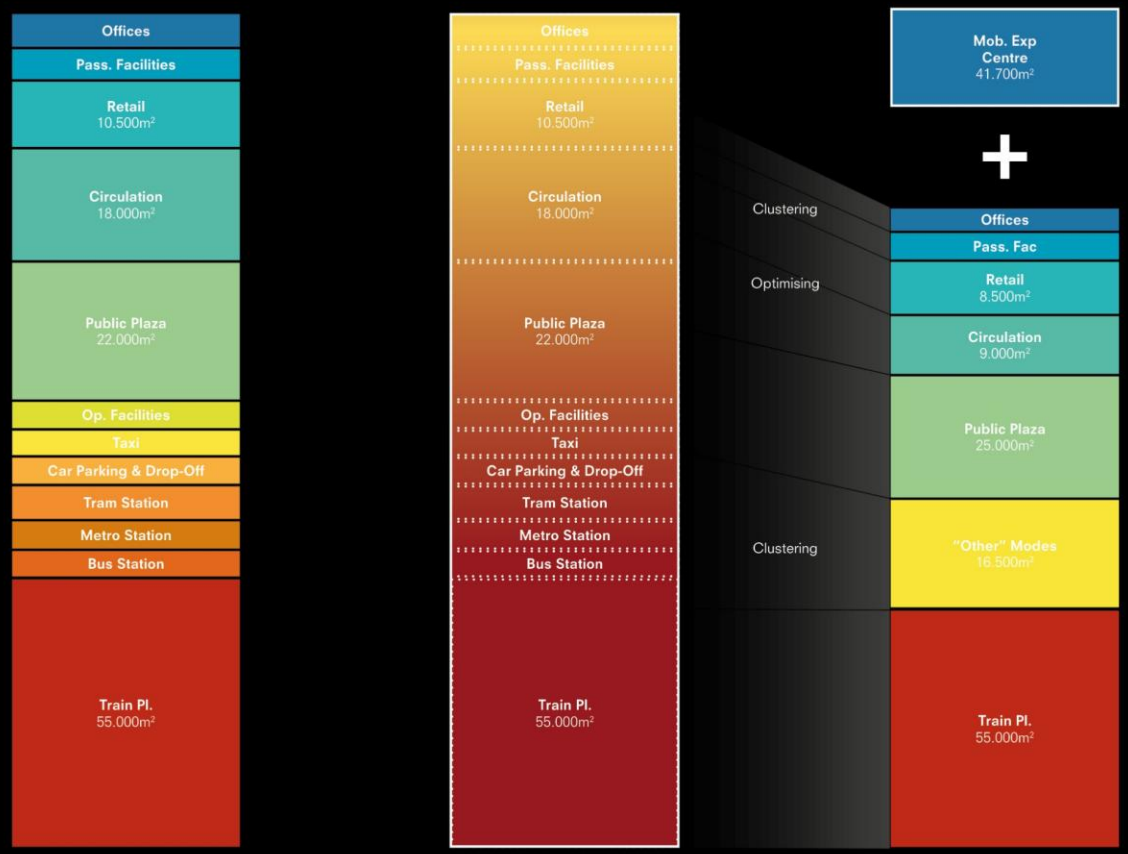
PROGRAM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Tram Station
Metro Station
Bus Station
Train Pl.
55.000m²
Clustering
Optimising
Clustering
Mob. Exp
Centre
41.700m²
+
Offices
Pass. Fac
Retail
8.500m²
Circulation
9.000m²
Public Plaza
25.000m²
"Other" Modes
16.500m²
Train Pl.
55.000m²

DETAILED PROGRAM

TRANSPORTATION HUB
GFA: 122.500m²

TRAIN PLATFORMS
55.000m²

- 26 Railway Tracks (300x3x26) 4000m²
- 26 Unobstructed Space (300x5x26) 48000m²
- Boarding Area 650m²
- Platforms Kiosks 150m²
- Heated & Closed Shelters 200m²

BUS STATION
4.000m²

- 8 Unobstructed Platforms 1000m²
- 8 Sheltered Waiting Areas 1000m²
- Malpensa Airport Shuttle Platform 200m²
- Bergamo Airport Shuttle Platform 200m²
- Linate Airport Shuttle Platform 200m²
- 7 Flixbus Platforms 350m²
- Vehicle Circulation 1000m²
- Ticketing Kiosk 50m²

METRO STATION
3.000m²

- 4 Metro Platforms 4000m²
- Unobstructed Space 500m²
- Ticketing Area 200m²
- Gates 50m²
- Transfer Areas 100m²
- Control Rooms 100m²
- Maintenance Rooms 75m²
- Lost & Found 15m²

TRAM STATION
1.500m²

- Tram Platforms 500m²
- Tram Parking & Infrastructure 1500m²

TAXI RANK & CAR PARKING
3.000m²

- Taxi Drop-Off 500m²
- Taxi Parking 500m²
- Car Parking 2000m²

SHARED MOBILITY ST.
5.000m²

- 10.000 Bike Parking Racks 1000m²
- Bike Repair Shop & Tool Box Totem 70m²
- Control Rooms 80m²
- 40 Car Rental Spots (2.3x5m) 460m²
- Parking Op. Rooms 525m²
- Vehicles Parking 3000m²
- Vehicles Maintenance 200m²
- Staff Facilities 200m²

OPERATIONAL FACILITIES
4.000m²

- Technical Facilities 1000m²
- Logistics (Storage & Delivery) 1000m²
- Staff Facilities 150m²
- Security Rooms 150m²
- First Aid Rooms 100m²
- Rail Operator Offices 1500m²

PUBLIC SQUARE
25.000m²

- Urban Green 19000m²
- Waiting Area 500m²
- Drop-Off (K&R) 500m²
- Plaza 5000m²

FLOW CIRCULATION
9.000m²

- Main Concourse 5000m²
- Passages 2000m²
- Passages 1000m²
- Stairs, Escalators & Elevators 1000m²

RETAIL F&B
10.500m²

- Lifestyle & Wellness Stores 9500m²
- Kiosk / Edicola 500m²
- Cafe 500m²

PASSENGER FACILITIES
2.500m²

- Info Points 150m²
- Toilets 200m²
- Bank ATM 100m²
- Luggage Deposit 450m²
- Ticketing Office & Machines 250m²
- Service Desk 200m²
- Lockers 300m²
- Seating Areas 1000m²
- Lounges 1300m²

"EXPERIENCE" TRAM DEPOSIT
17.000m²

- Maintanance 1000m²
- Loading / Unloading Space 2000m²
- Circulation Space 4000m²
- 600 Tram Units 12.000m²

VISITOR CENTRE
600m²

- Waiting Areas 100m²
- Foyer 500m²
- Reception 100m²

FLOW CIRCULATION
1.500m²

- Stairs & Elevators 500m²
- Unobstructured Space 1000m²

ADMINISTRATION OFFICES
400m²

- Offices 400m²

SHARED FACILITIES
1.200m²

- Back of House 500m²
- Operational Facilities 500m²
- Toilets 200m²

"DESIGN" SPACES
3.500m²

- Storage 50m²
- Workshop 450m²
- Art Galleries 1000m²
- Design Fair 2000m²

"BUREAUCRACY" SPACES
3.500m²

- Canteen 1000m²
- Gathering Area 1000m²
- Assembly Rooms (500 p.) 2500m²

"FASHION" SPACES
3.500m²

- Foyer 500m²
- Technical Rooms 500m²
- Stages 1500m²
- Fitting Rooms 500m²
- Inventory 500m²
- Seating Area 500m²

"LEISURE" SPACES
3.500m²

- Staff Services 500m²
- Garbage Fac. 500m²
- Vendors BOH 1000m²
- Food Hall 2000m²

"LITERATURE" SPACES
3.500m²

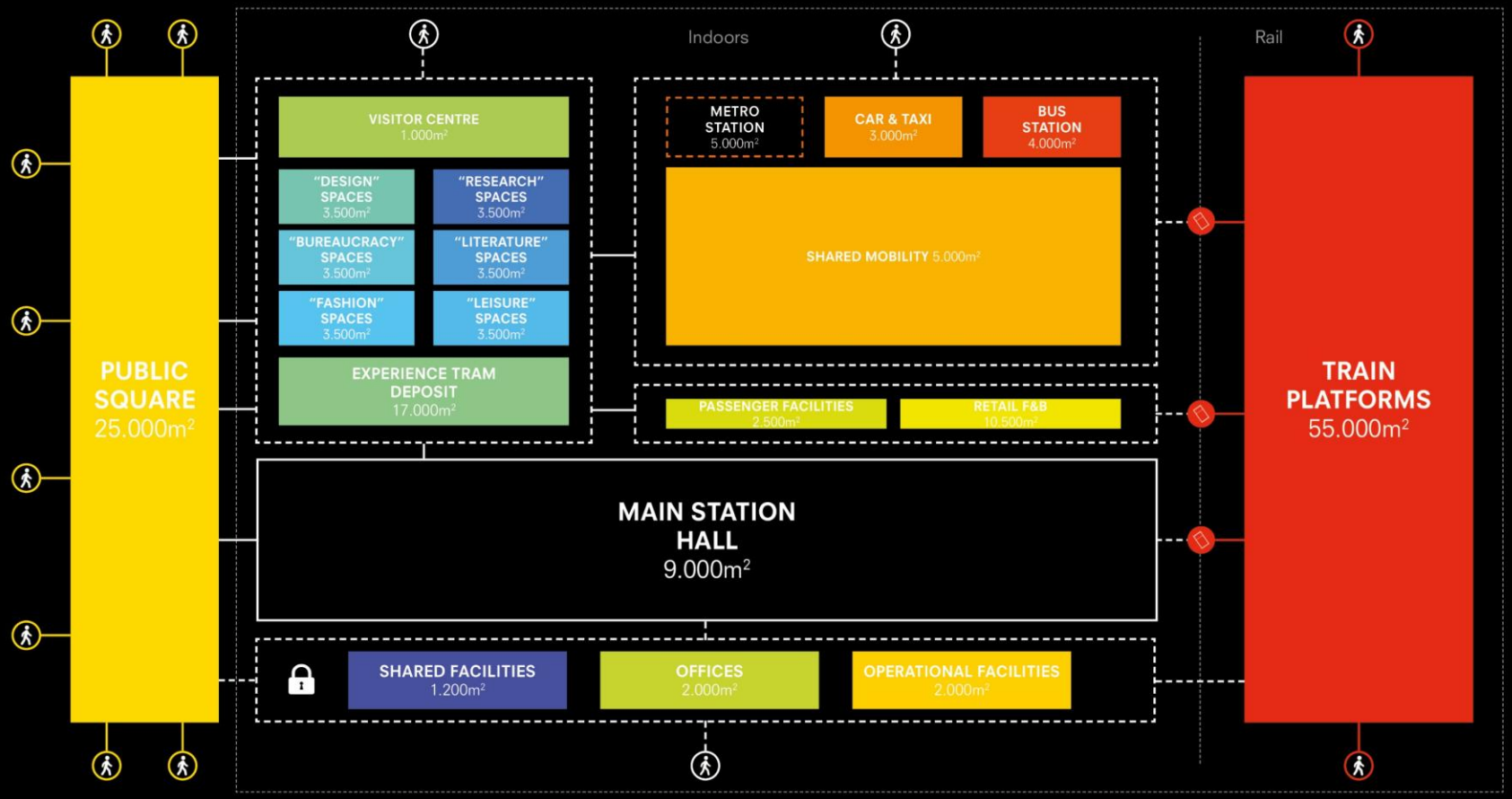
- Storage 500m²
- Bookstore 500m²
- Archives 500m²
- Co-working 500m²
- Library 1500m²

"RESEARCH" SPACES
3.500m²

- Open-Air Theatre 1500m²
- Foyer 500m²
- Green Room 500m²
- Auditoriums 1500m²

MOBILE EXPERIENCE CENTRE
GFA: 61.700m²

ORGANISATION



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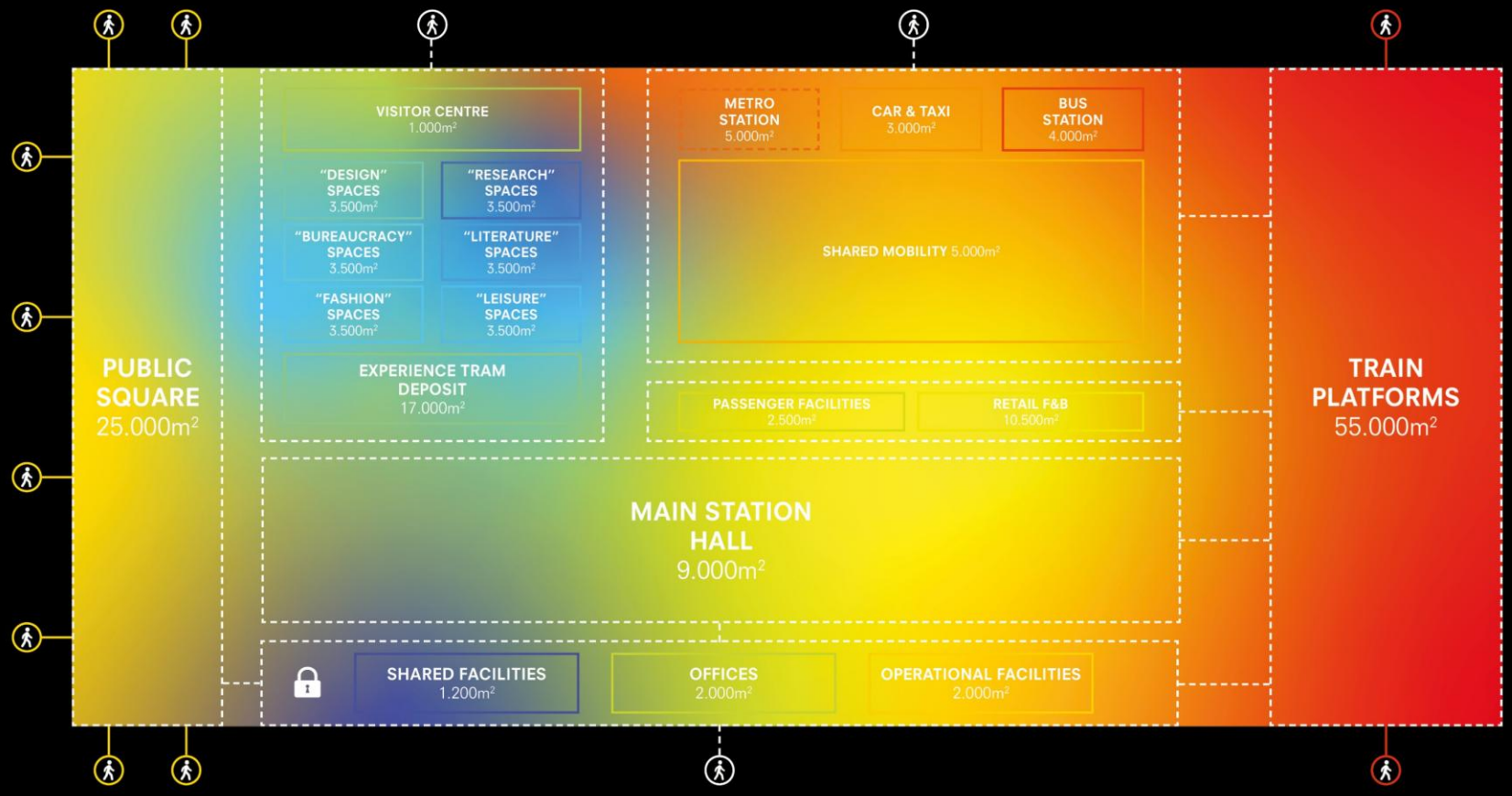
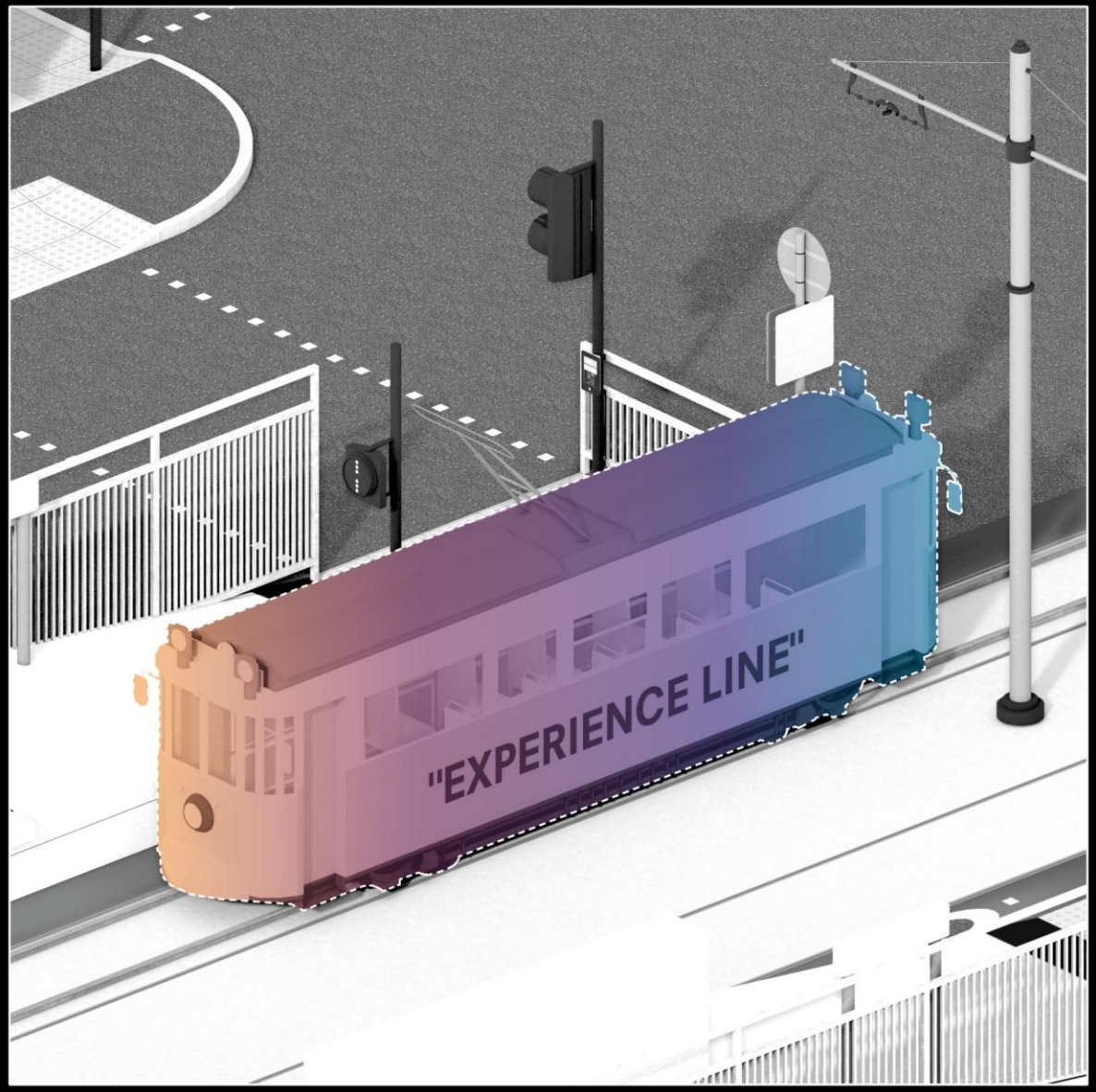
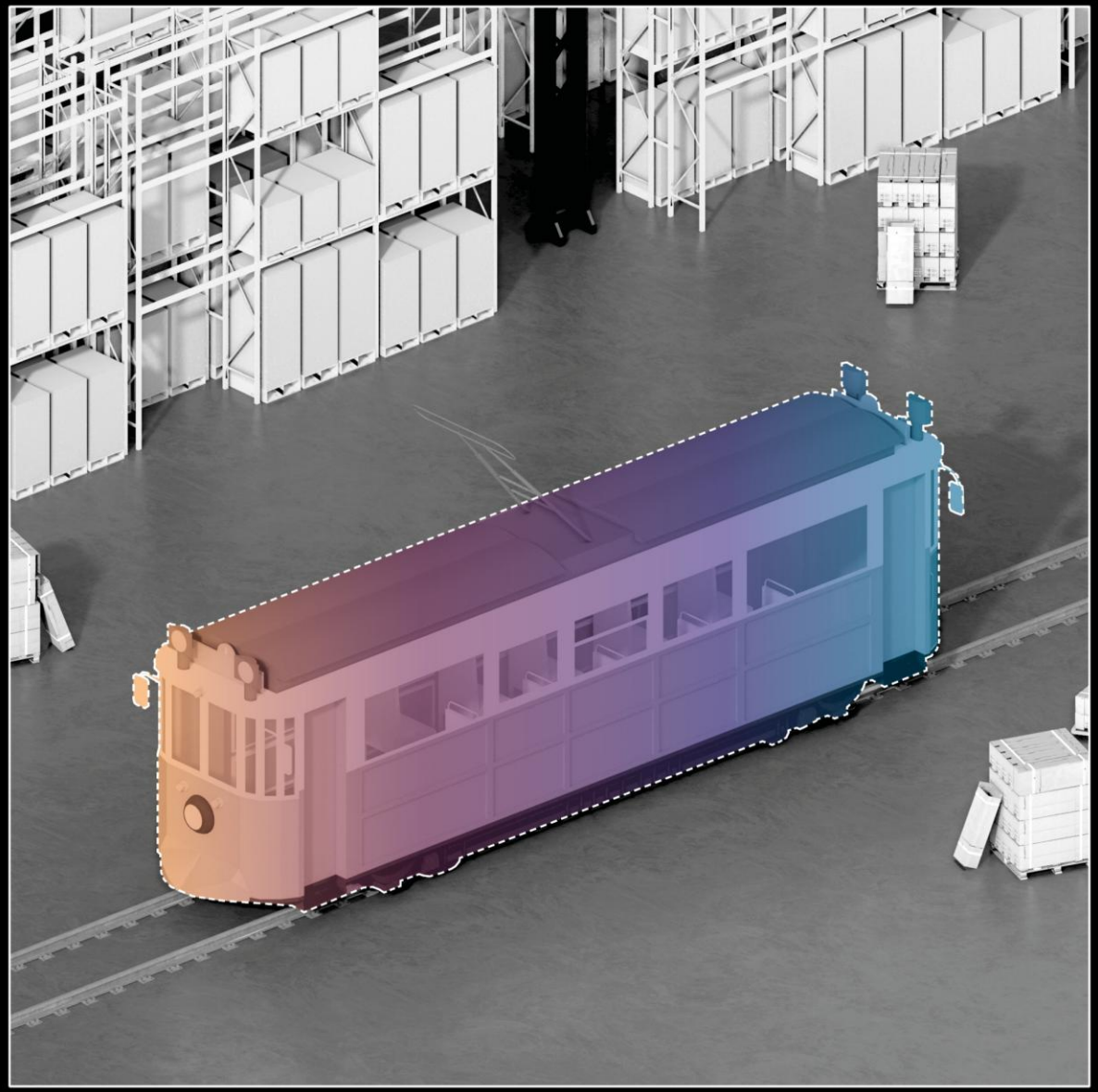


IN THE CITY



BUT ALSO...



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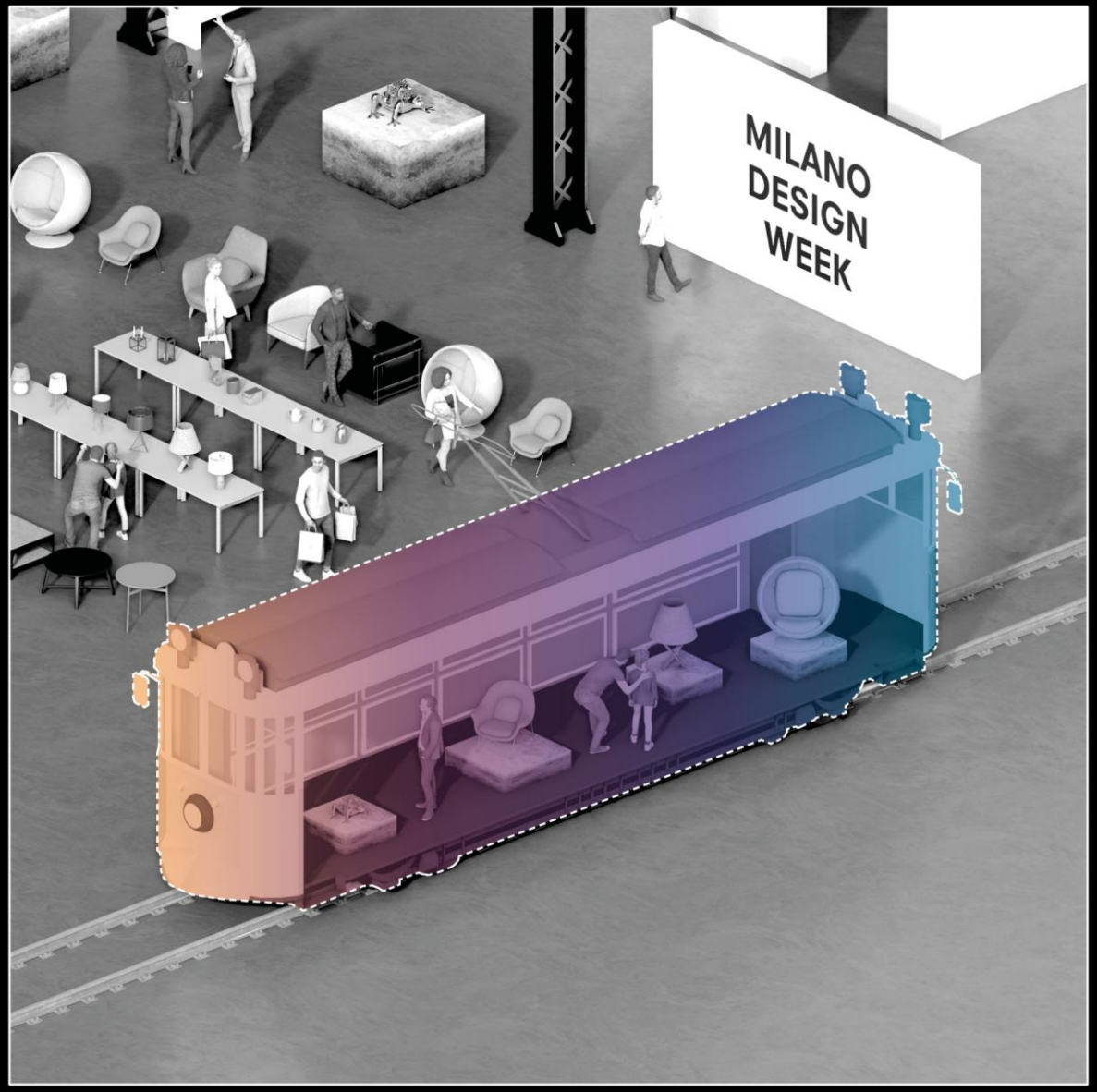


THE METHOD

CLIENT

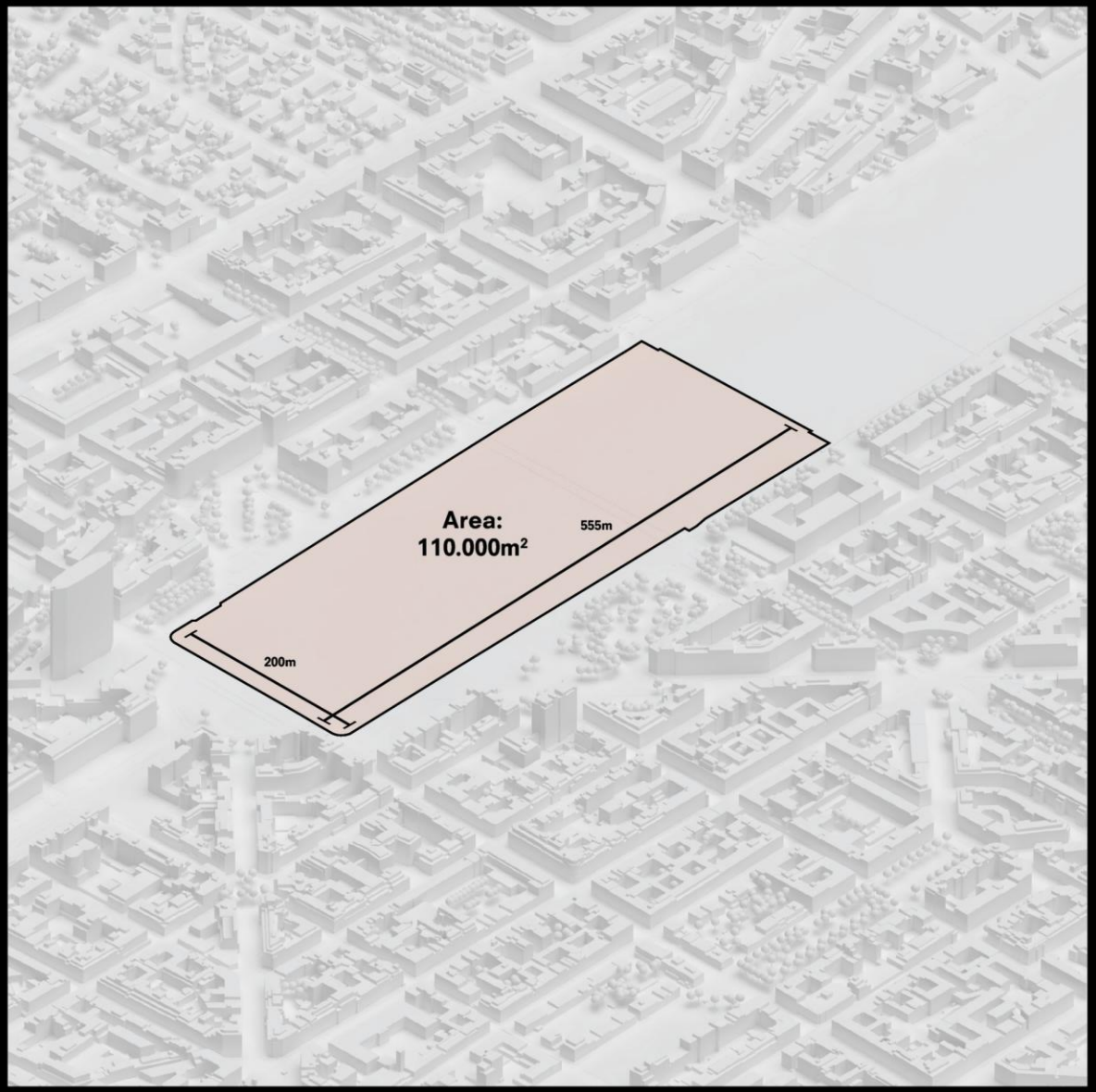
SITE

PROGRAM

concept

CLIENT

SITE



EXISTING STATION

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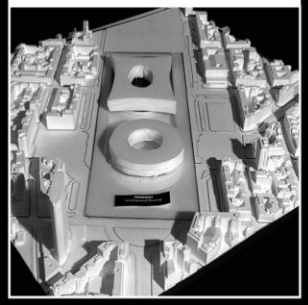
PROGRAM

TRANSPORTATION HUB + MOBILE EXPERIENCE CENTER = ON THE MOVE

concept

3X3

PROGRAM



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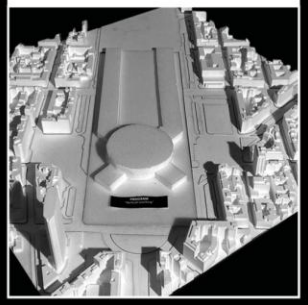

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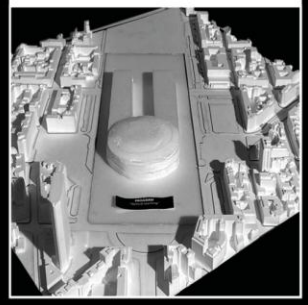
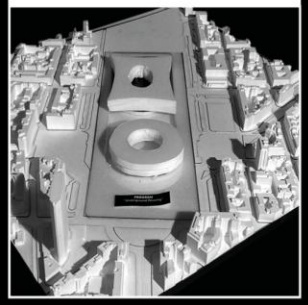


concept

3X3

PROGRAM



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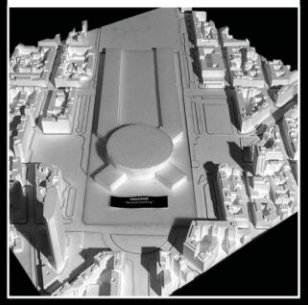

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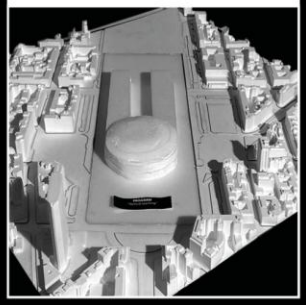

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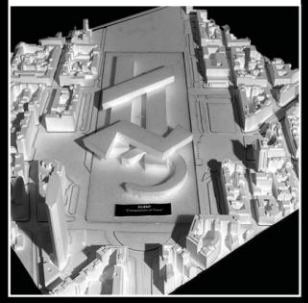

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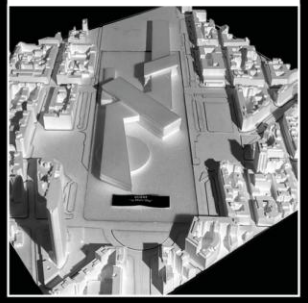

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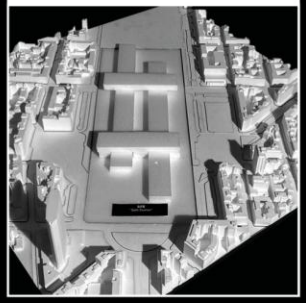

concept

3X3

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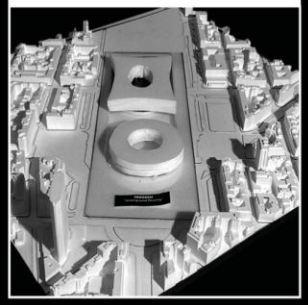

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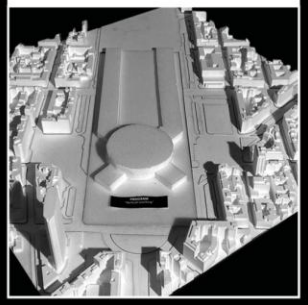
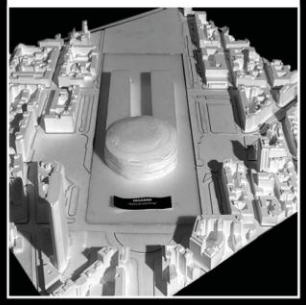


PROGRAM



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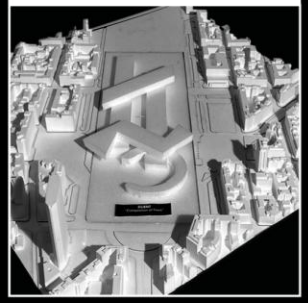

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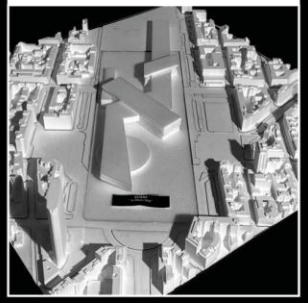

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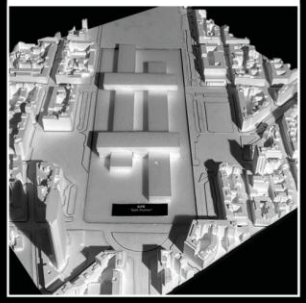
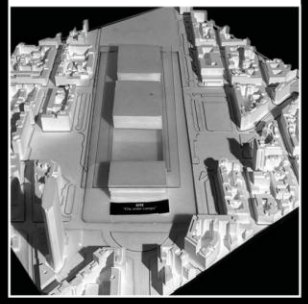
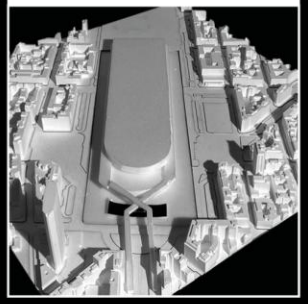


SITE



SITE



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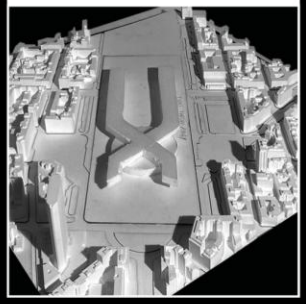
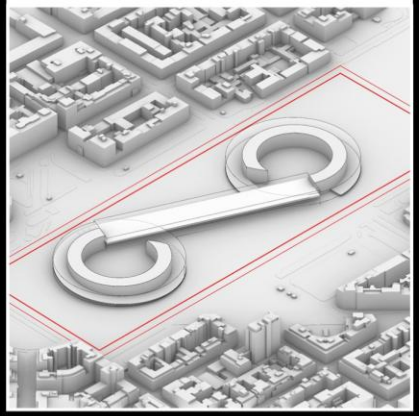


concept

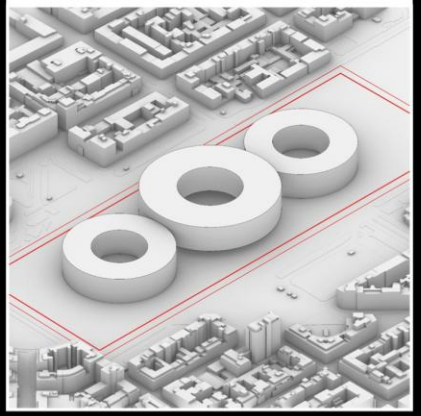
EXPLORATIONS

NON INTERSECTING LOOP

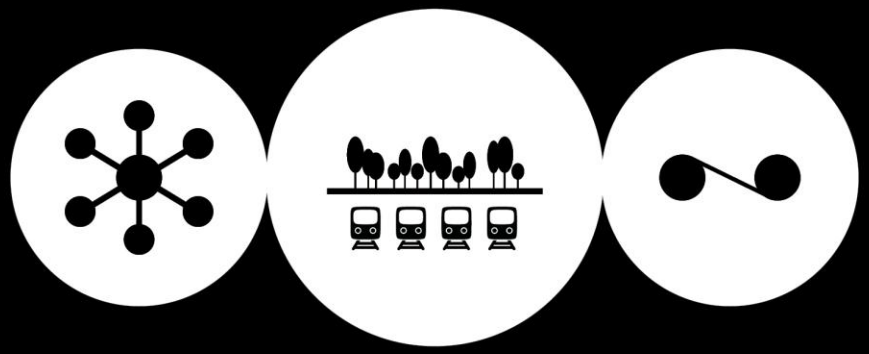
INTERSECTING LOOP



3 CIRCLES



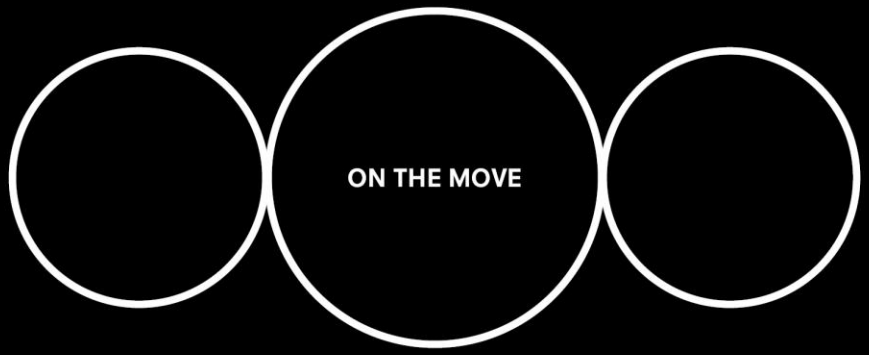
DESIGN GUIDELINES



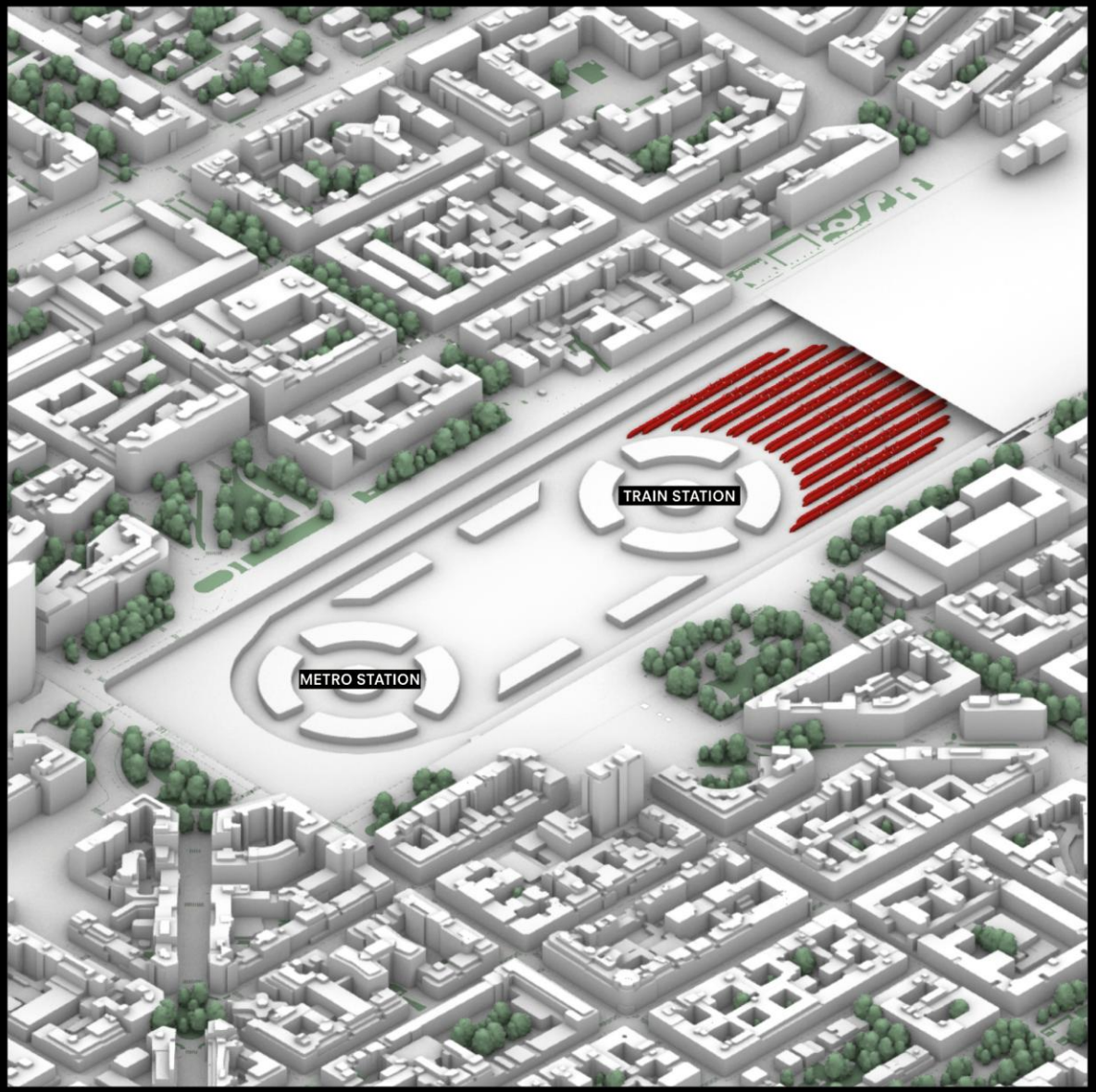
PROGRAM CLUSTERING

UNDERGROUND PLATFORMS

INTERSECTING LOOP


ON THE MOVE

-2



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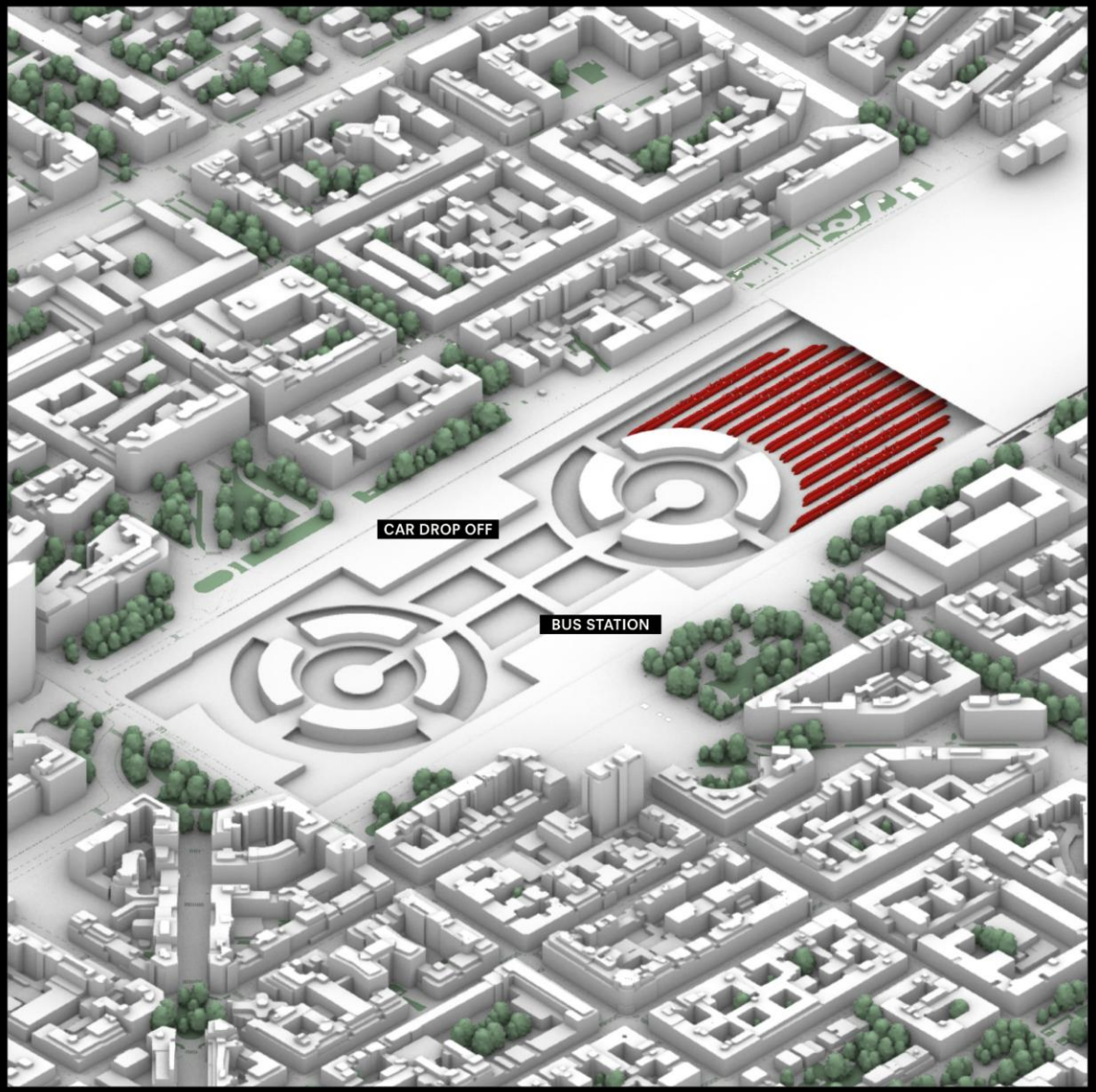
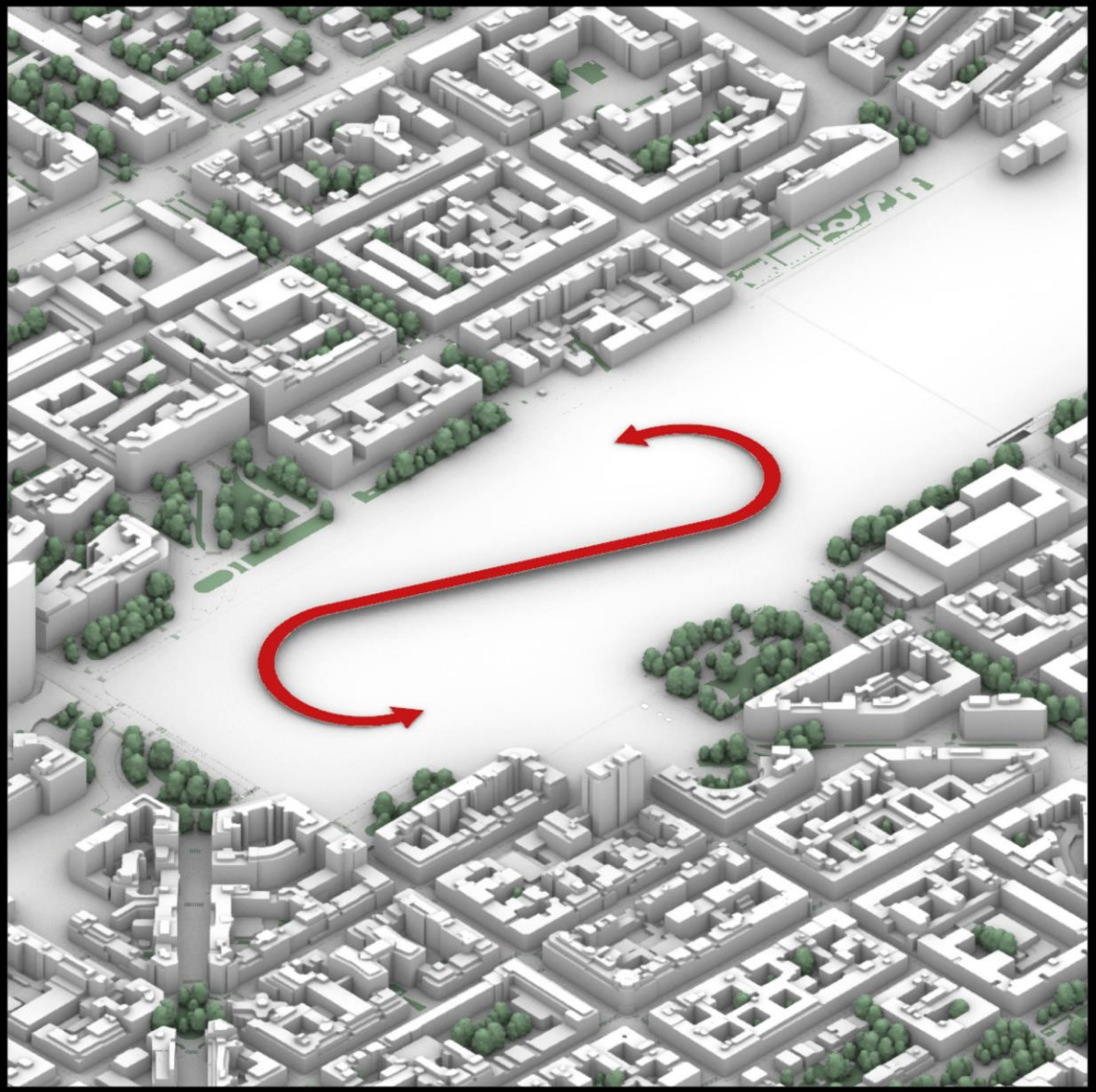


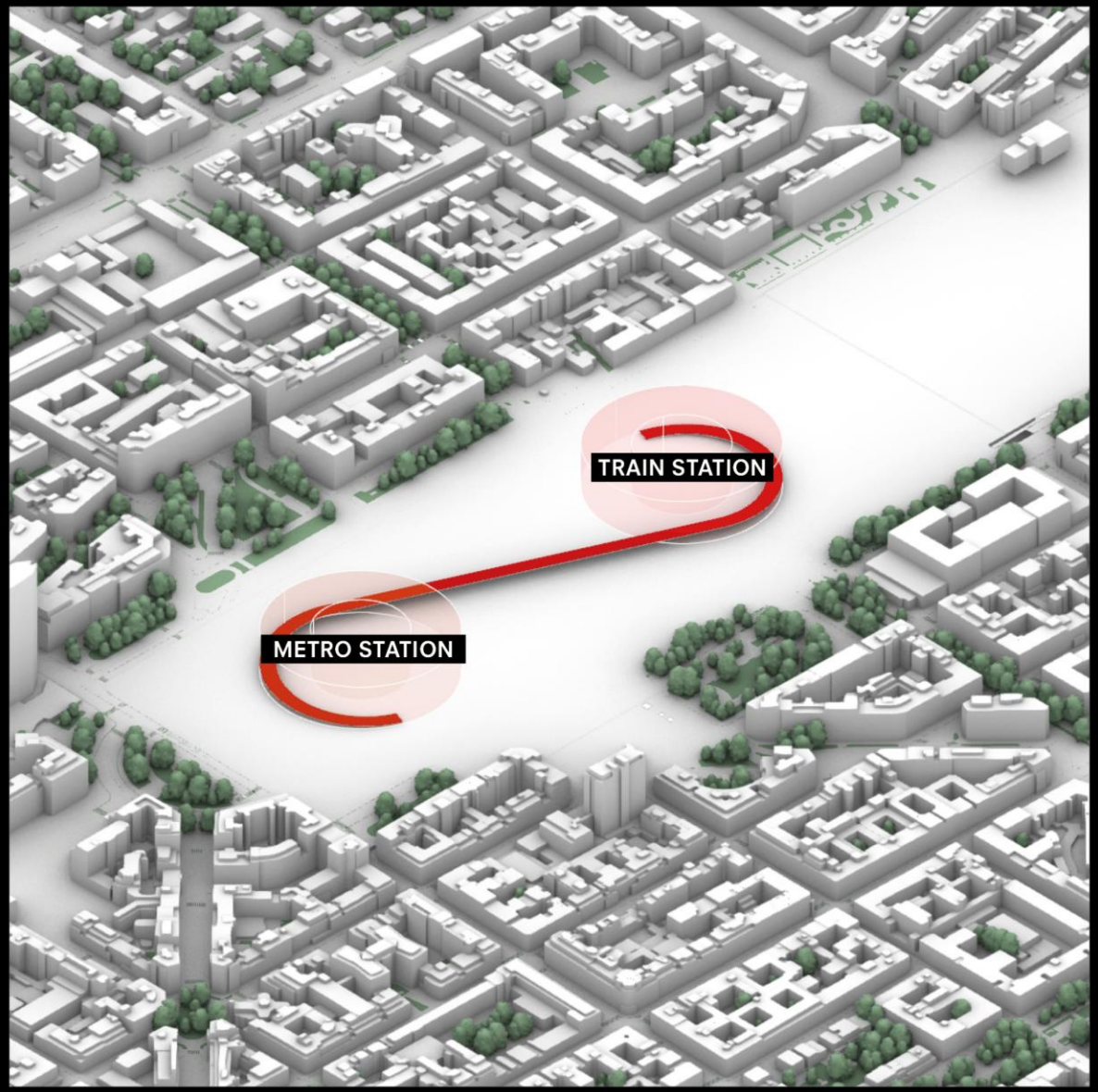
SITE

concept

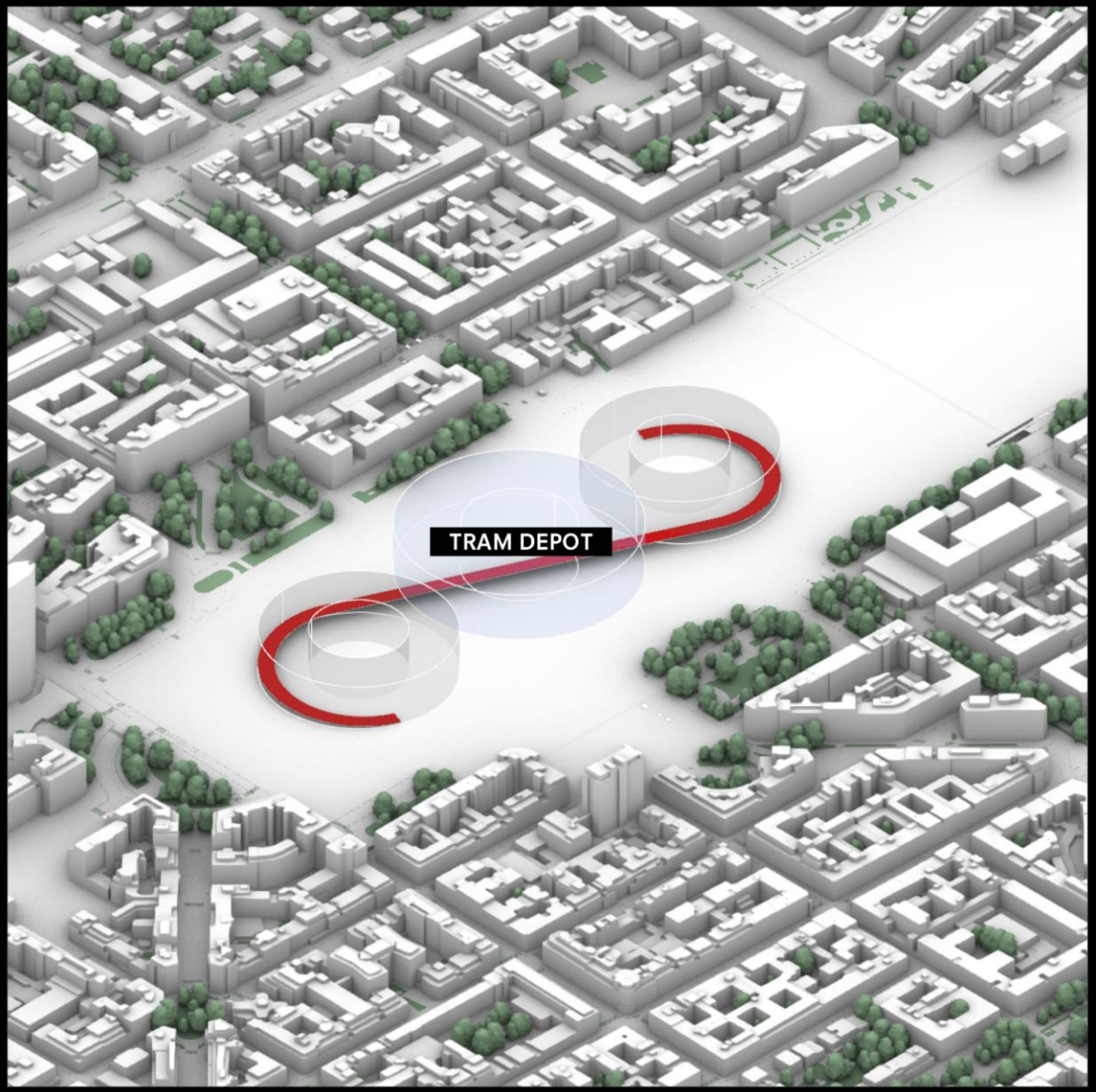
LOOP



BUILDINGS



BUILDINGS



concept

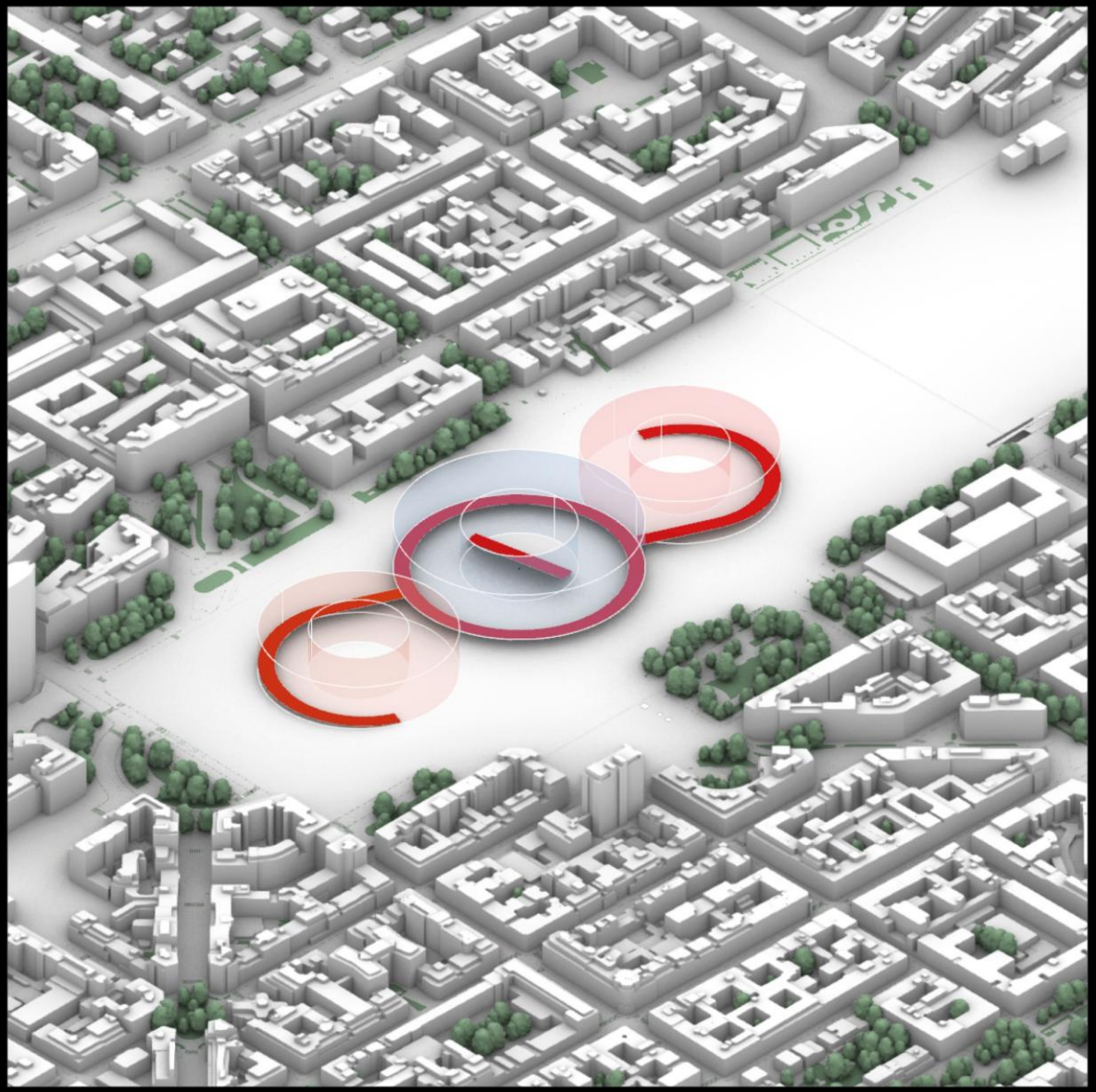
TURNTABLE

concept

TURNTABLE & ROUNDHOUSE

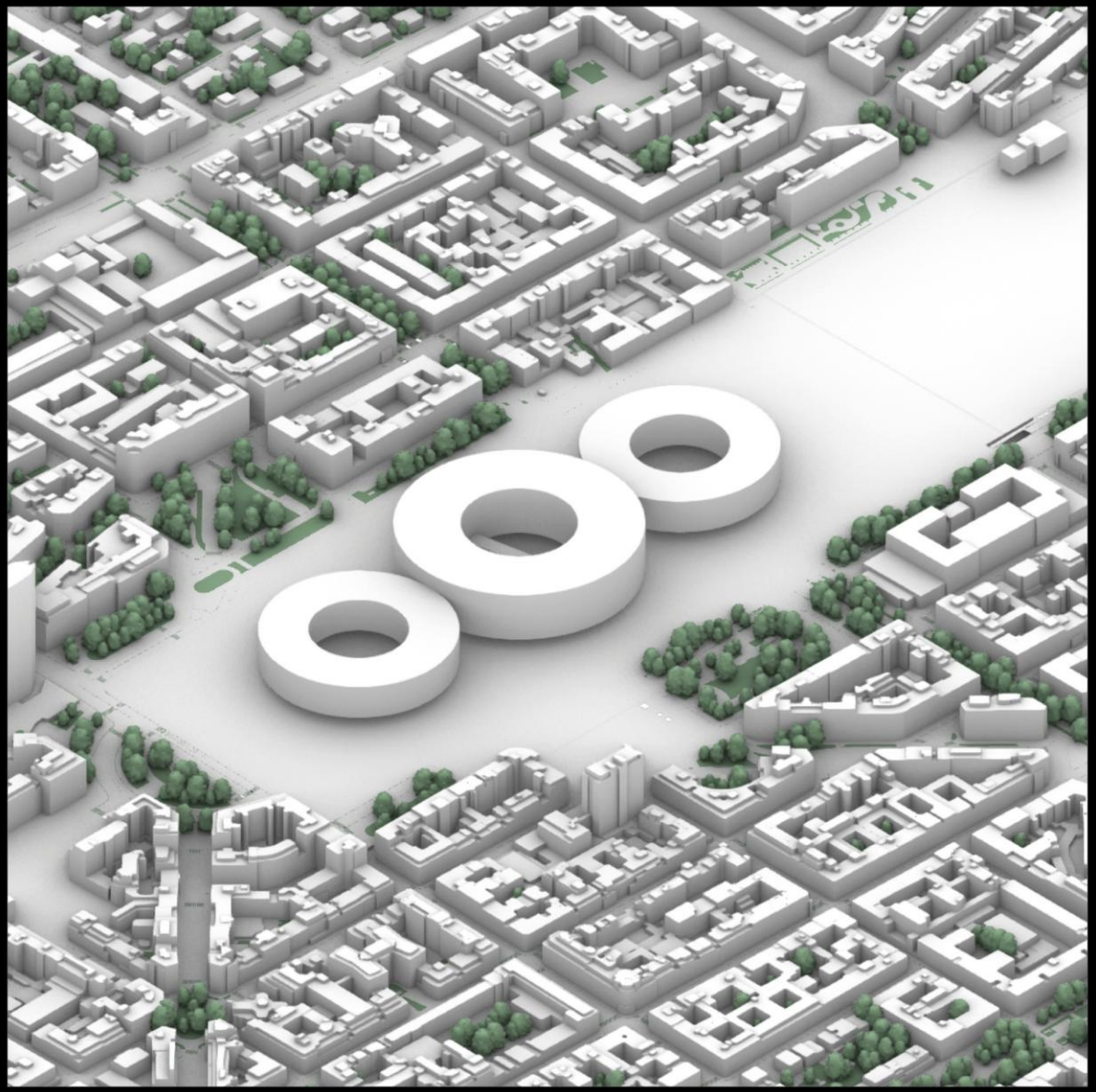
concept

COMPLETING THE LOOP

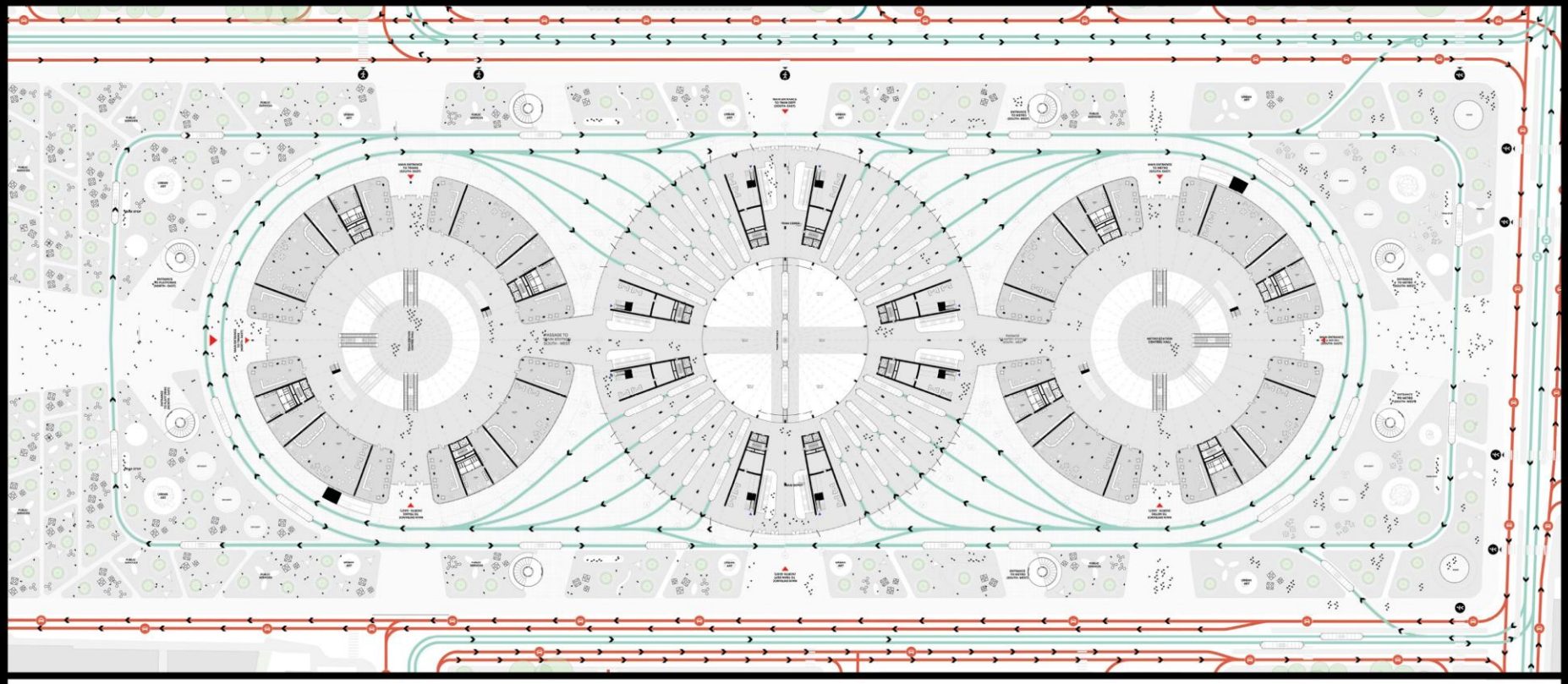


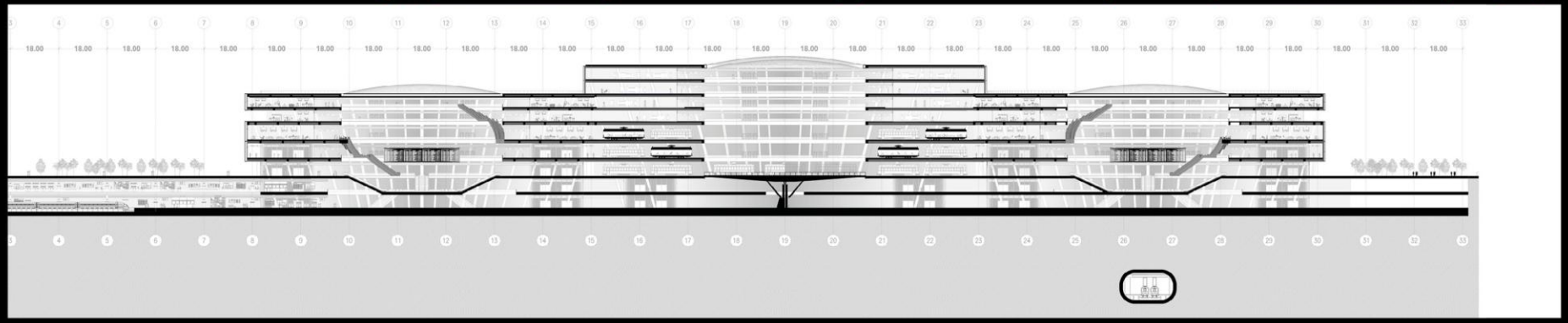
concept

ON THE MOVE

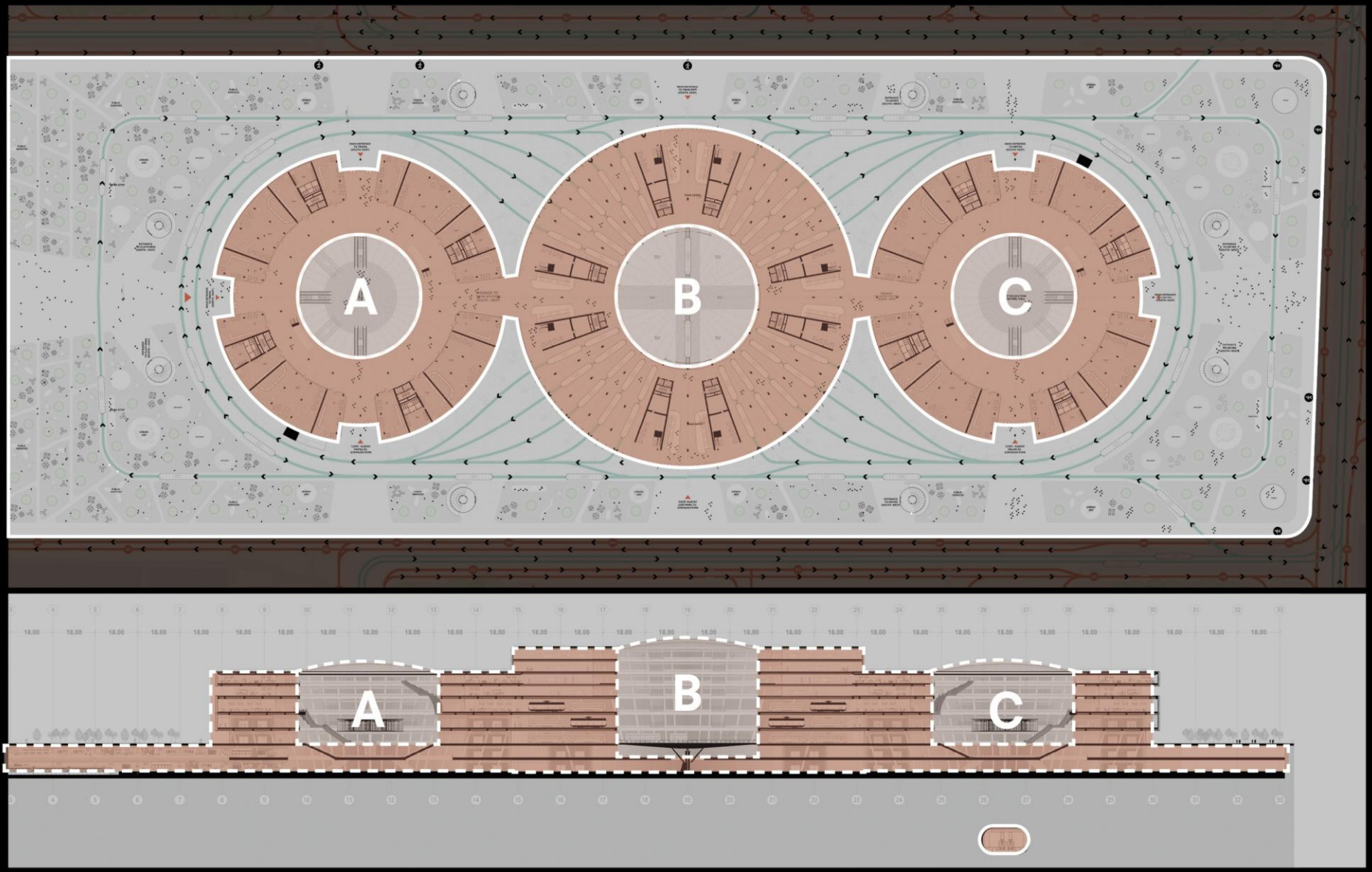


OVERVIEW

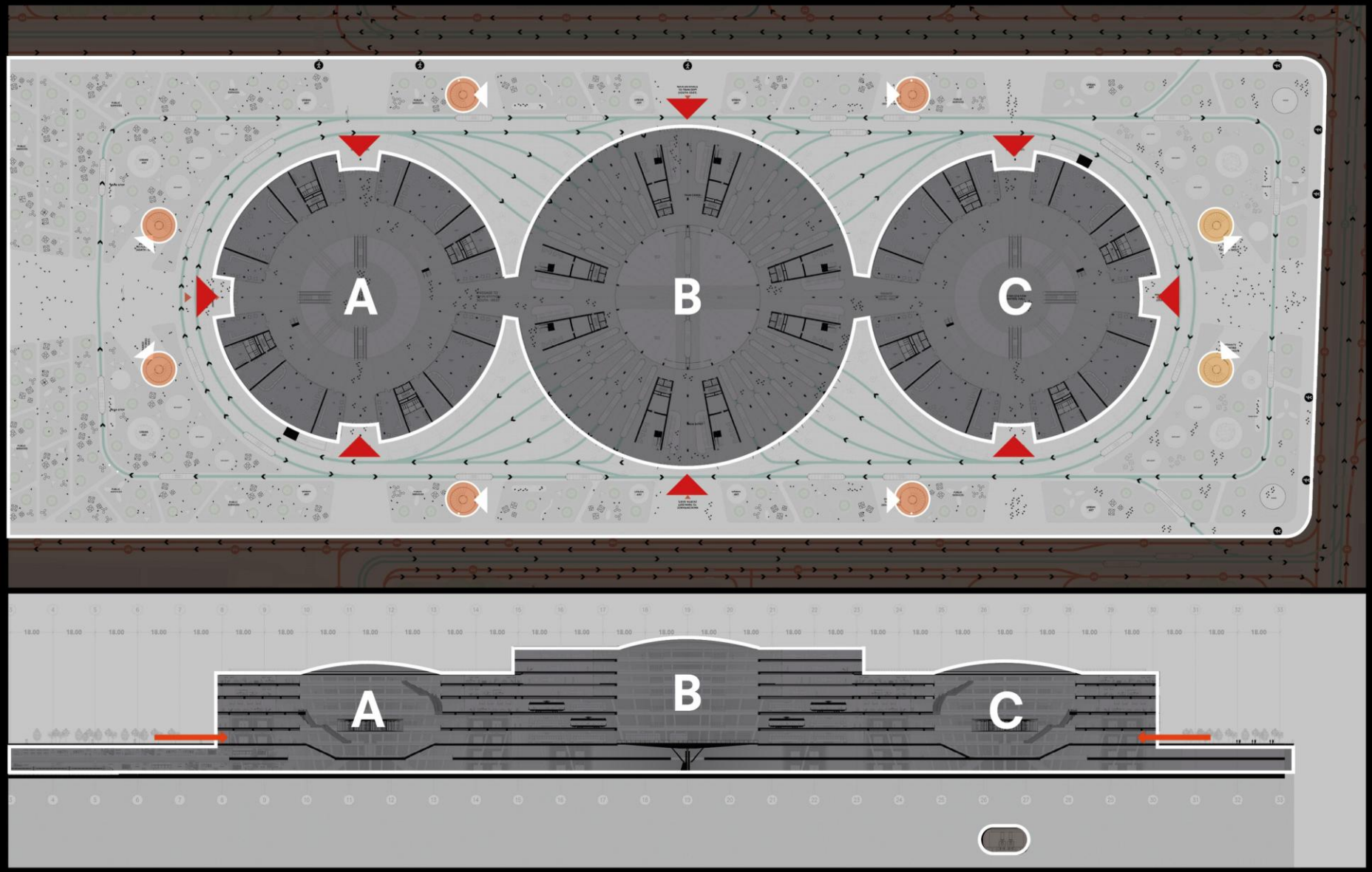




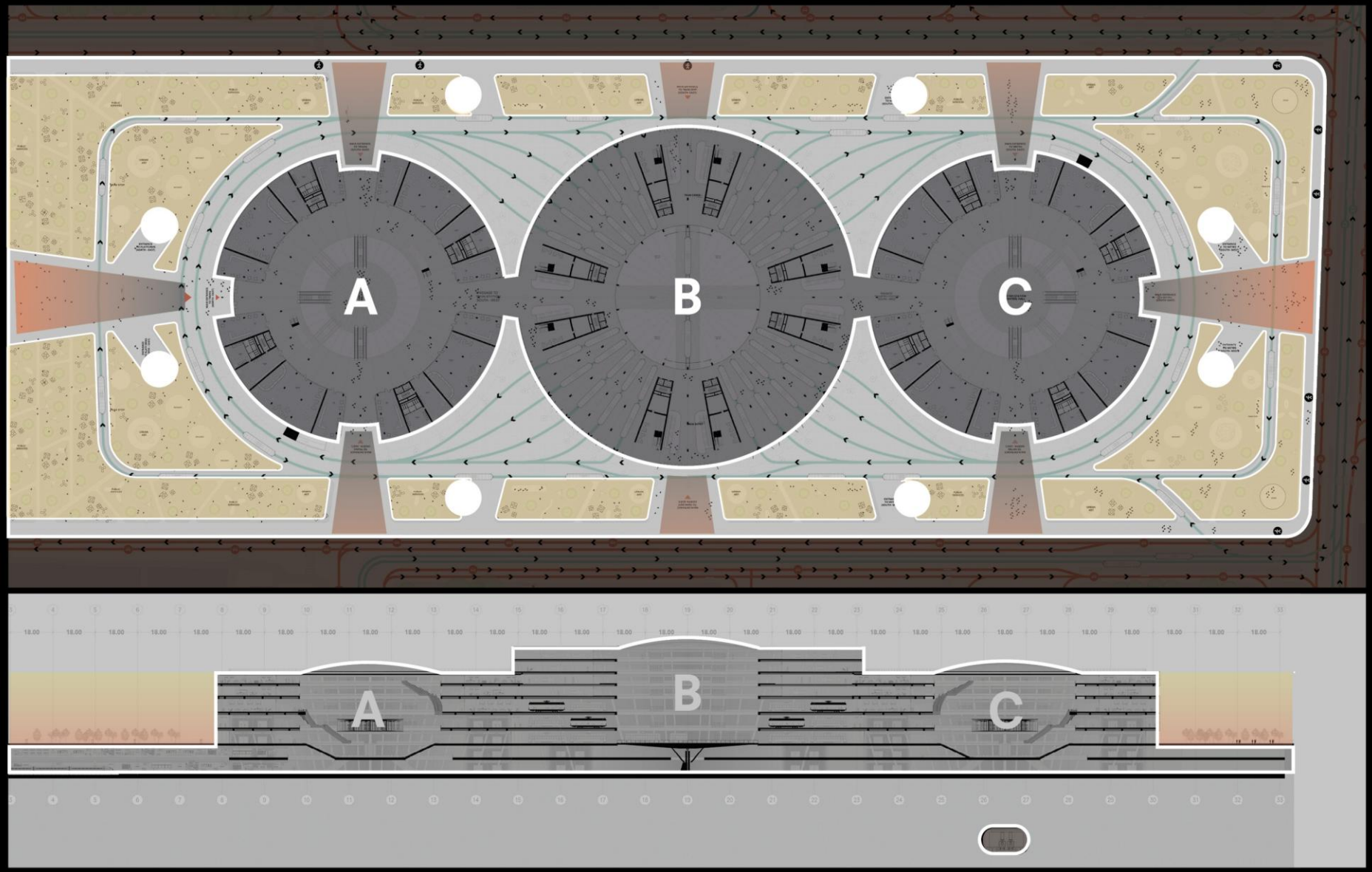
OVERVIEW



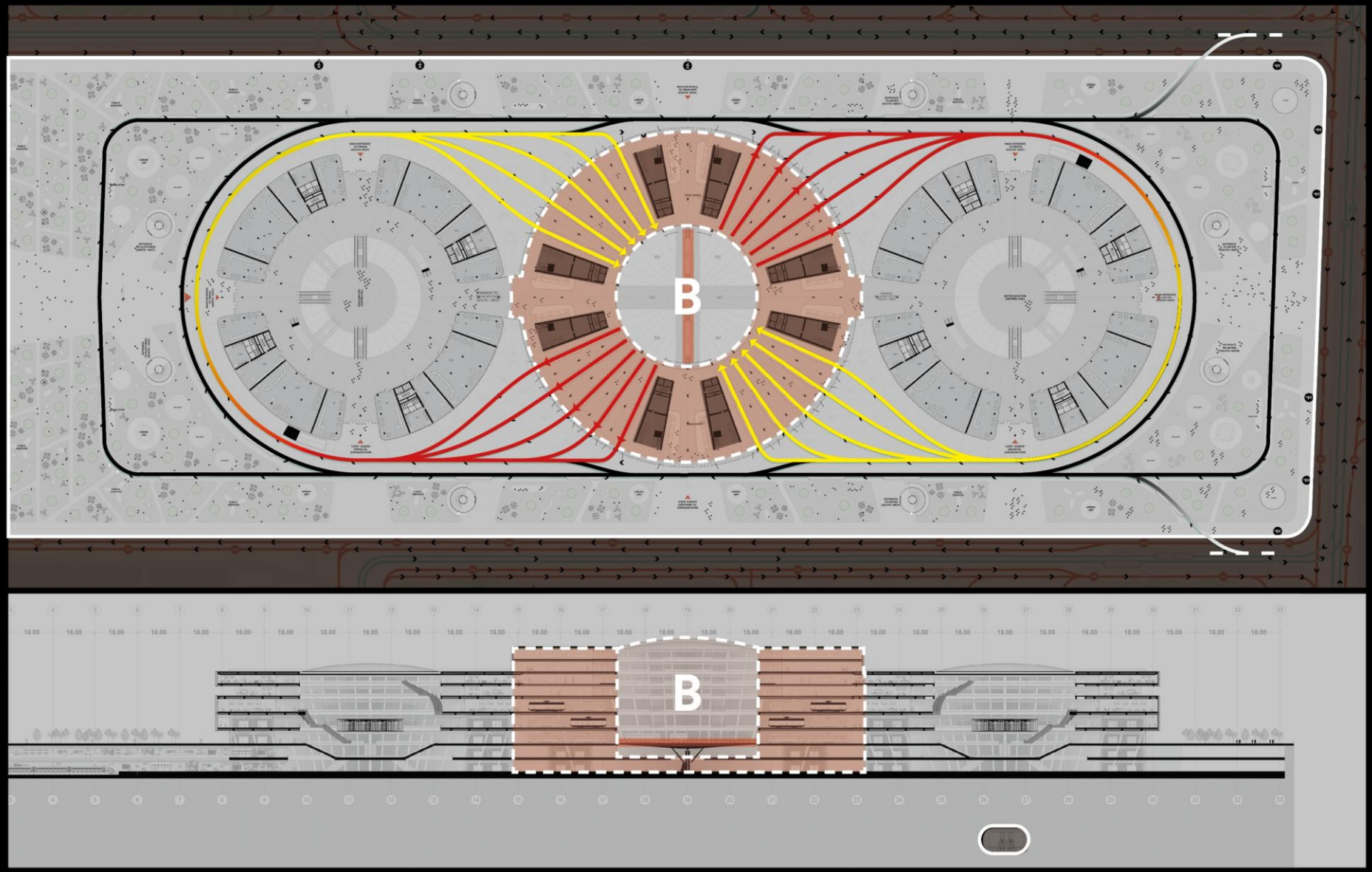
OVERVIEW



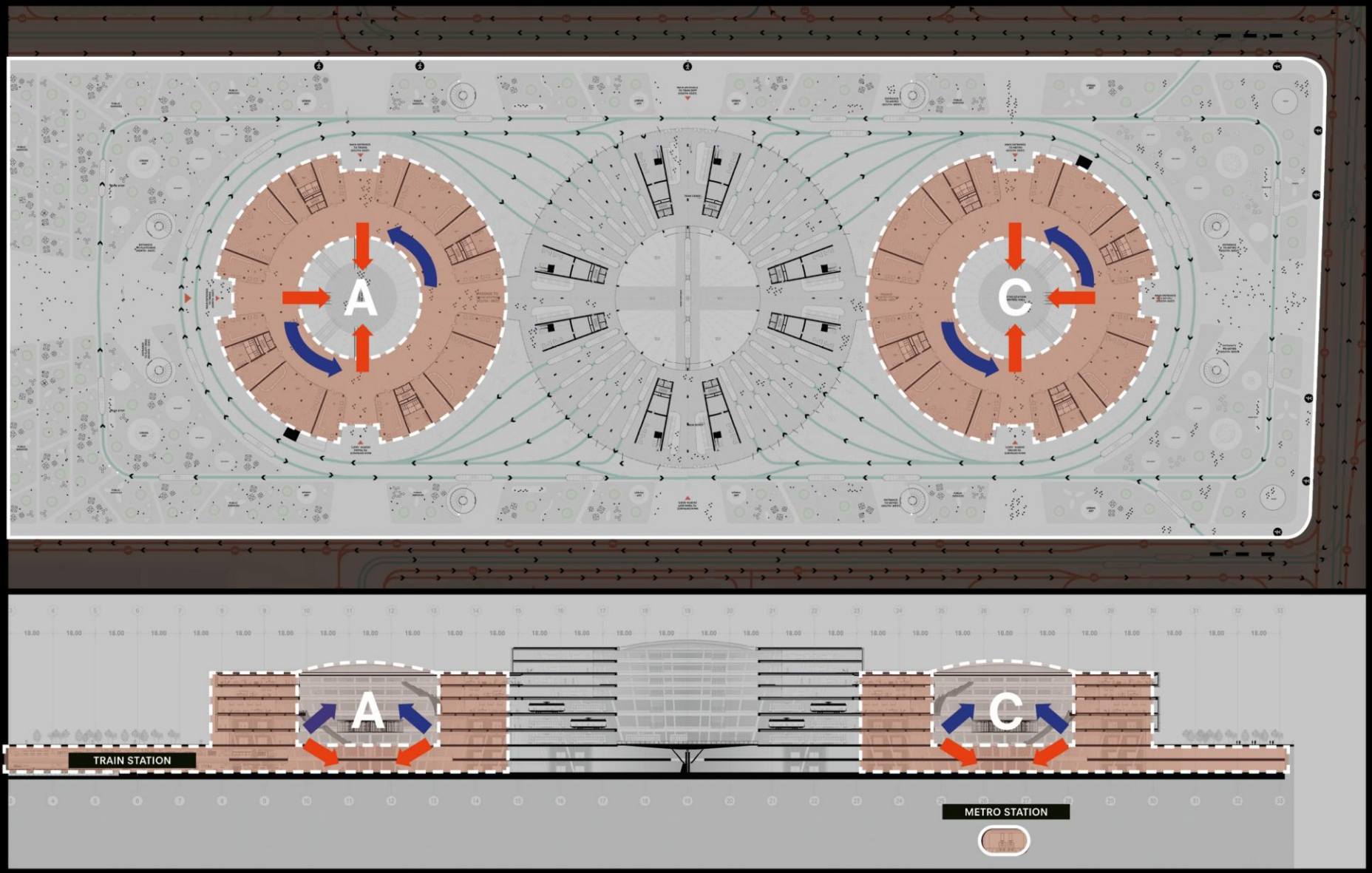
OVERVIEW



OVERVIEW



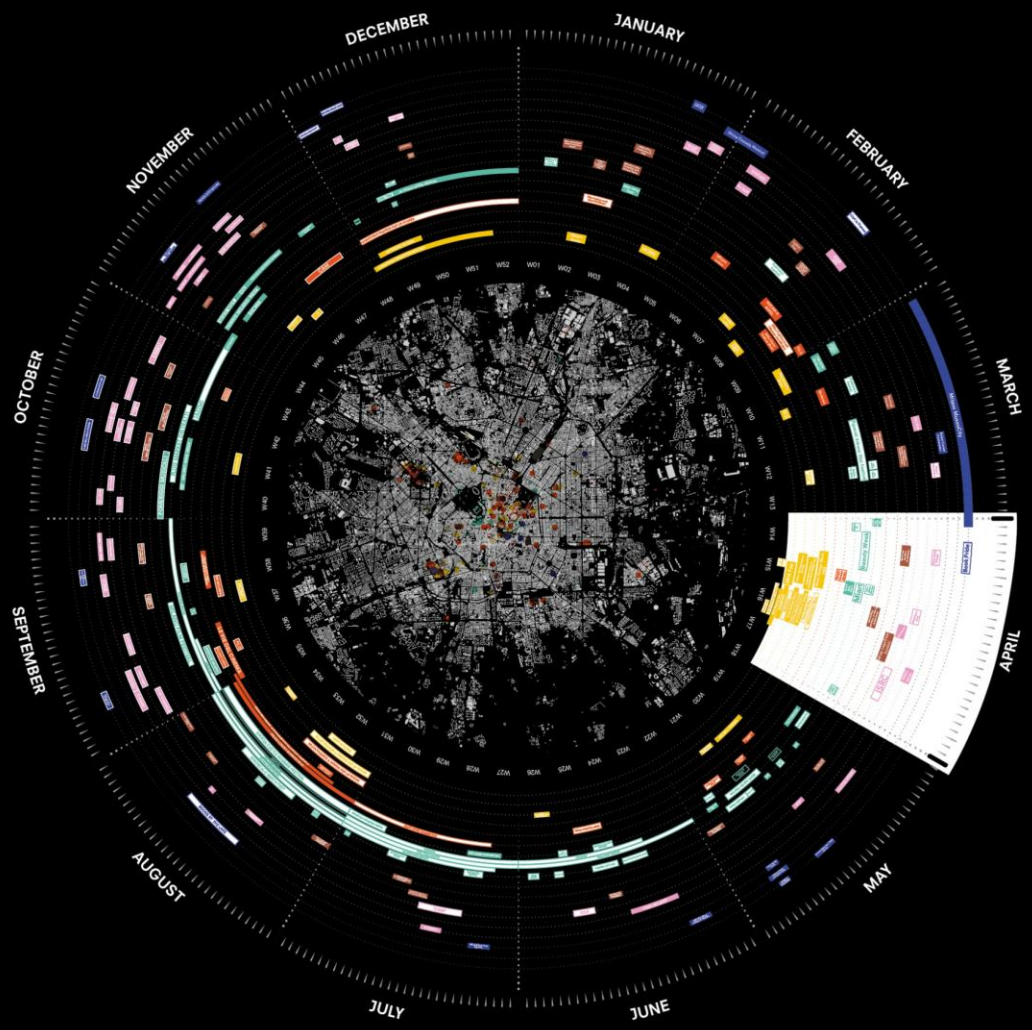
OVERVIEW



APPROACHING


NUOVA STAZIONE
CENTRALE DI MILANO
ON THE MOVE

A POINT IN TIME



ON THE PLATFORM

IN THE CITY


MILANO
MILANO
GALLERIA VITTORIO EMANUELE II
Comune di Milano

AT THE TRAM STOP

ARRIVAL

by foot

by train

by cars & bus

by bike

by tram

ARRIVAL

by foot

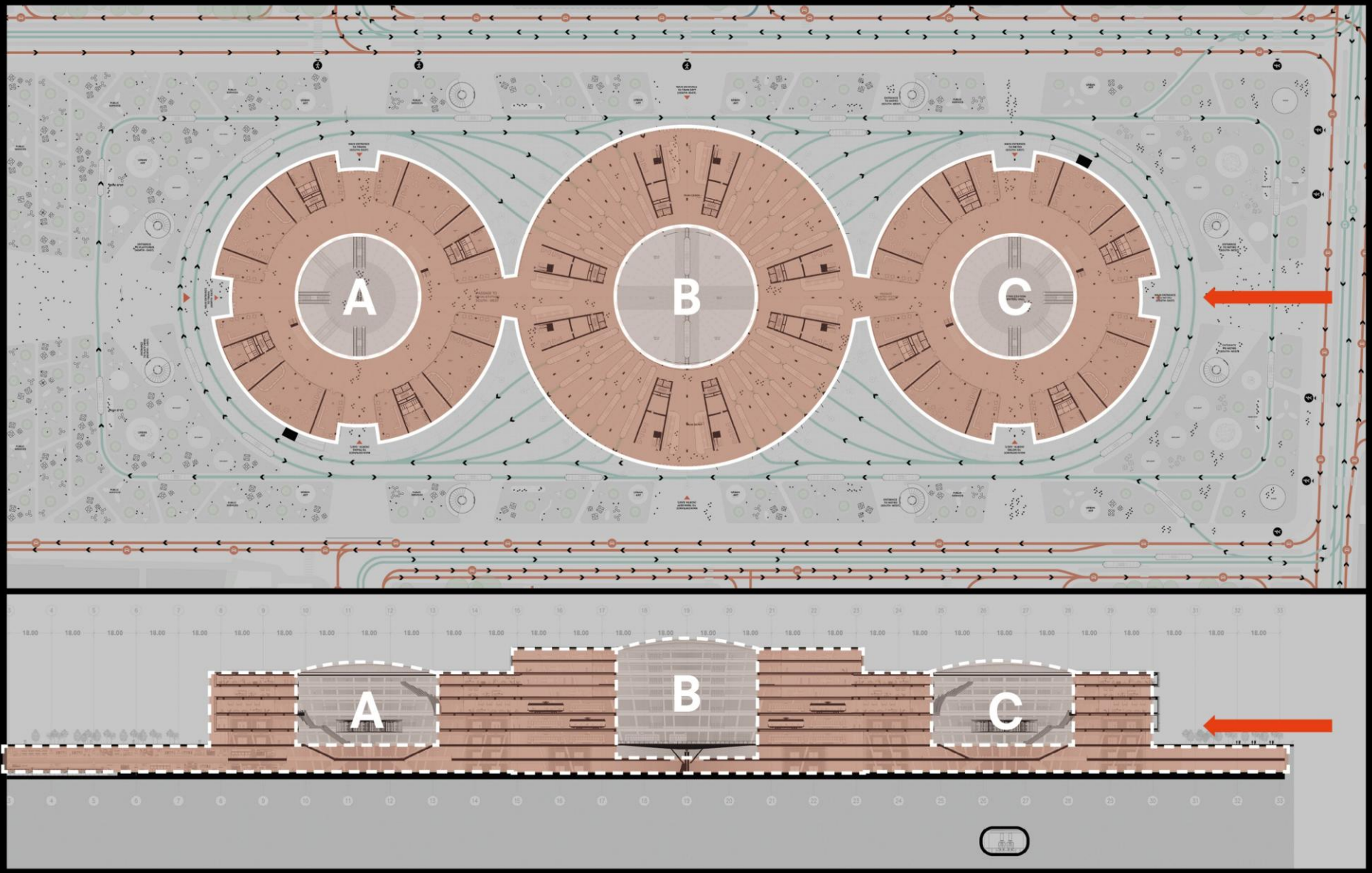
by train

by cars & bus

by bike

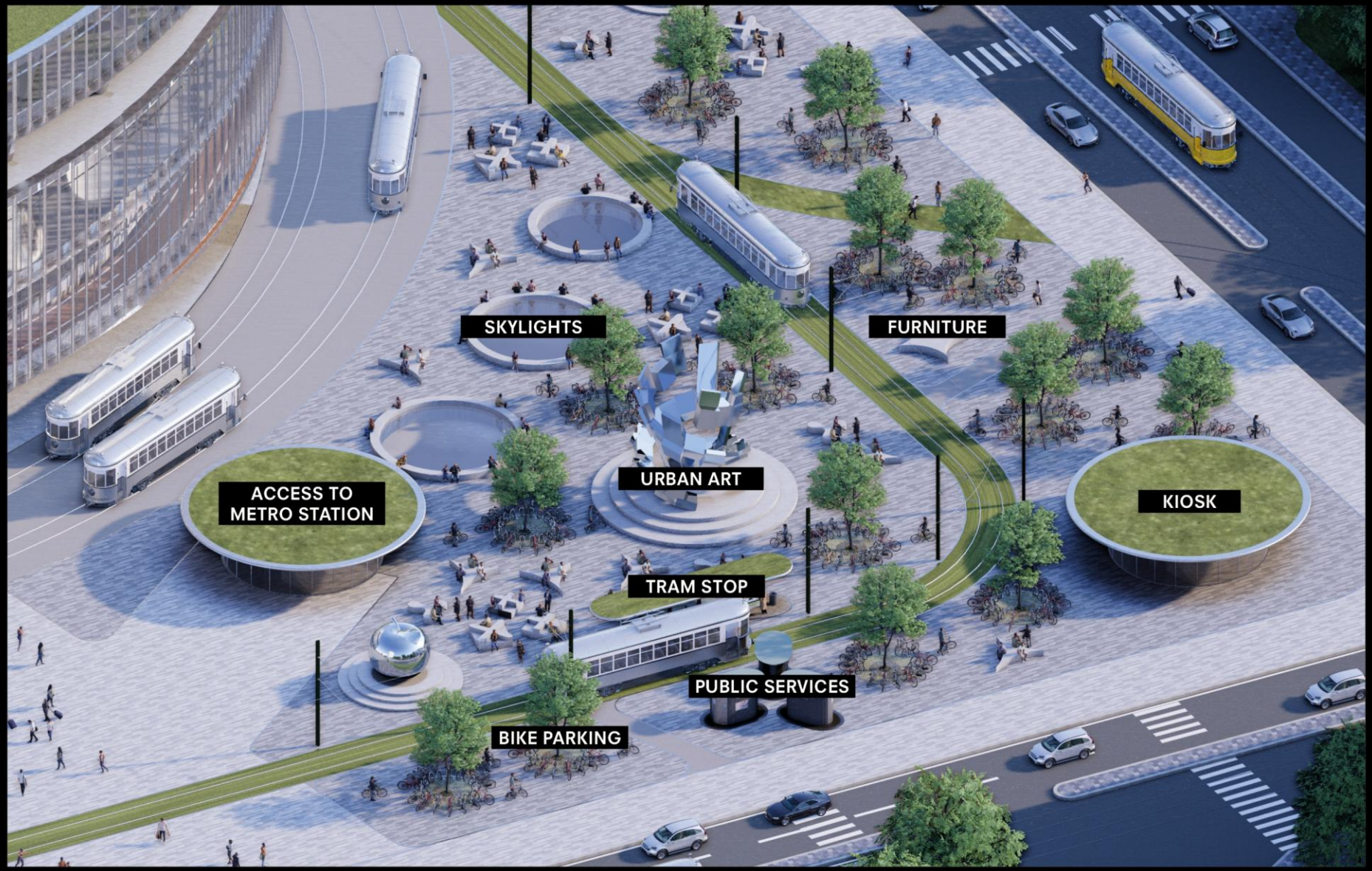
by tram

ARRIVAL



CORSO PISANI

PIAZZA LUCA D'AOSTA



AERIAL VIEW

ARRIVAL

by foot

by cars & bus

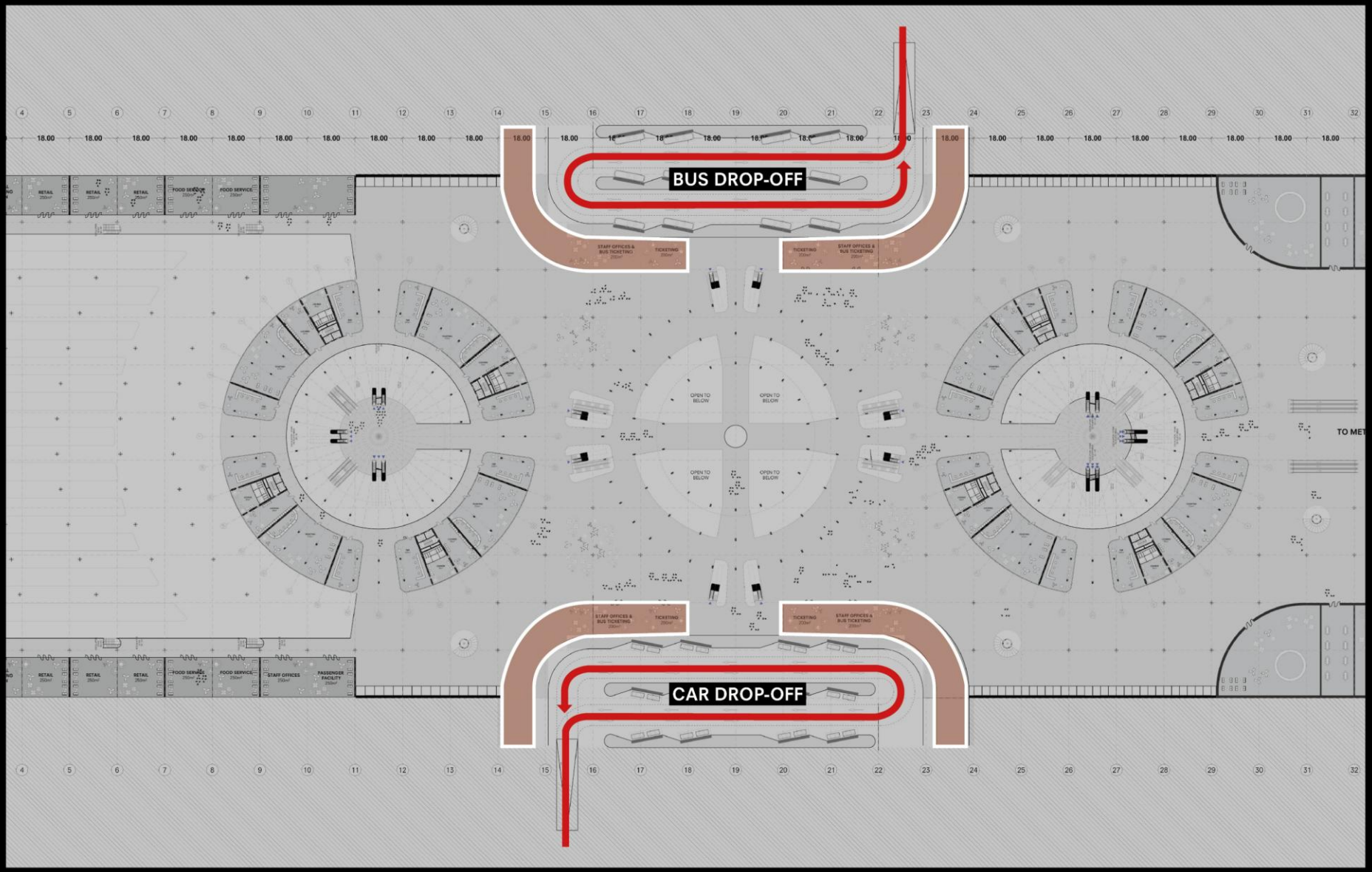
by train

by bike

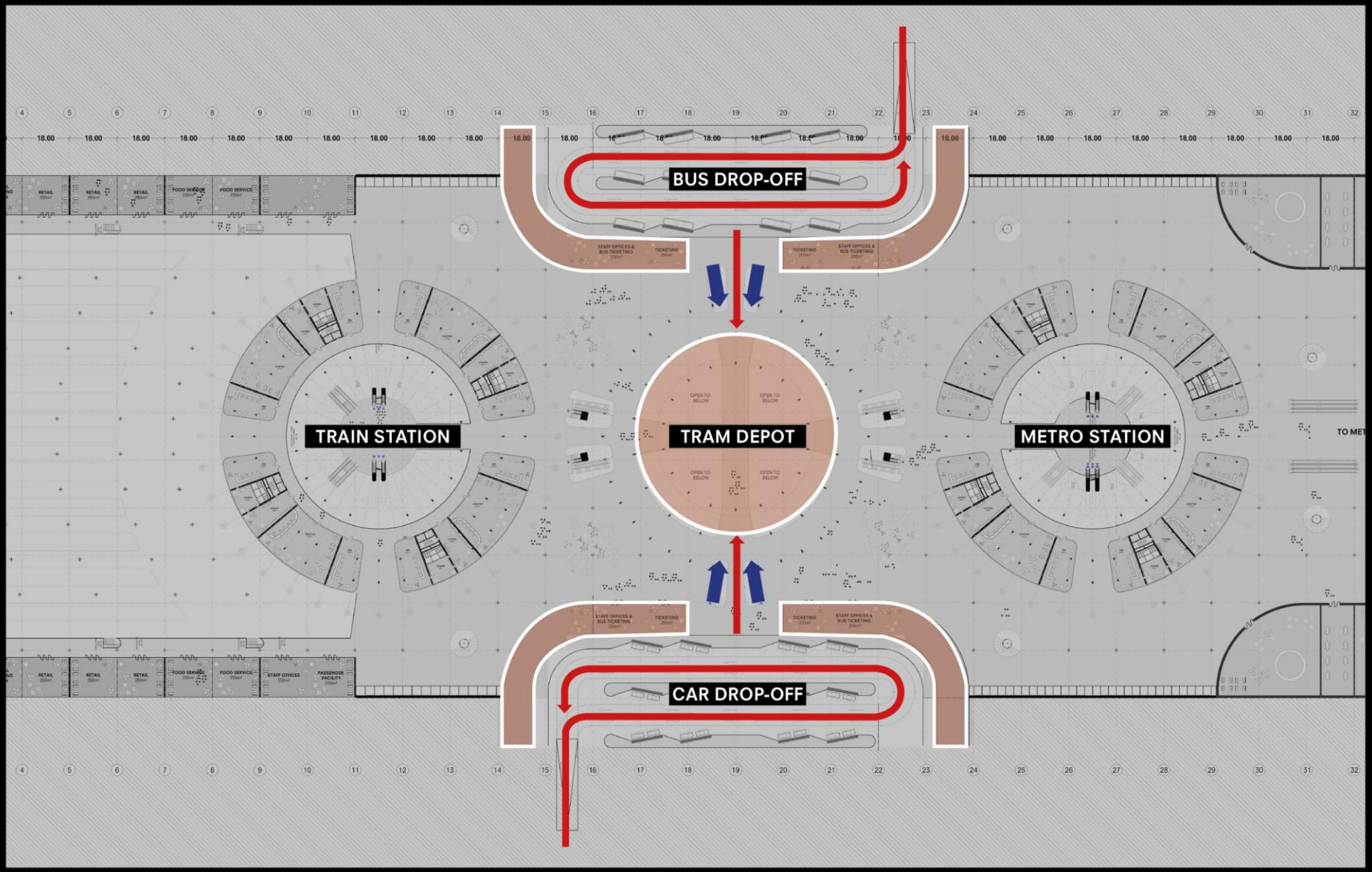
by tram

APPROACHING

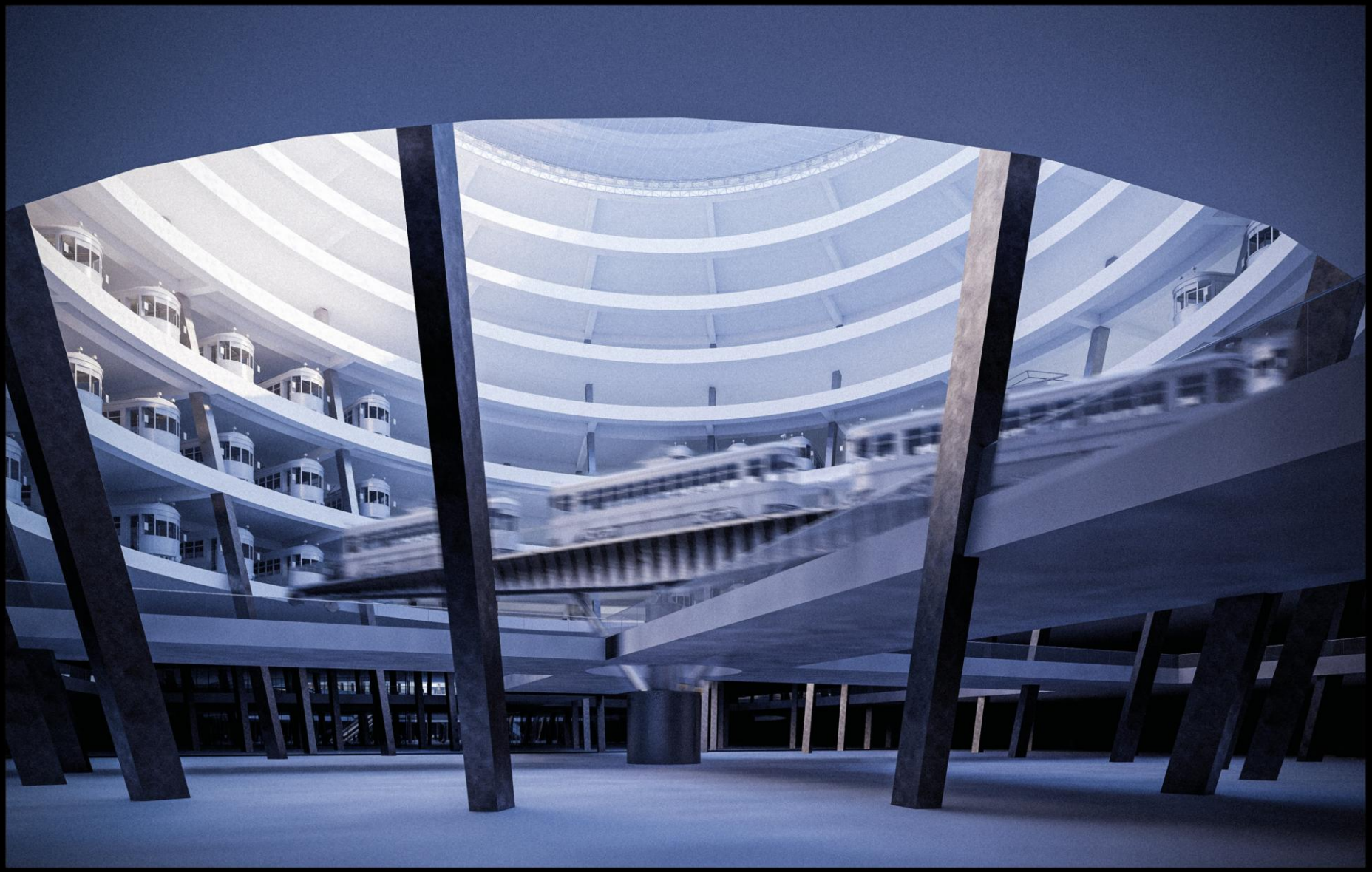
BUS & CAR DROP-OFF



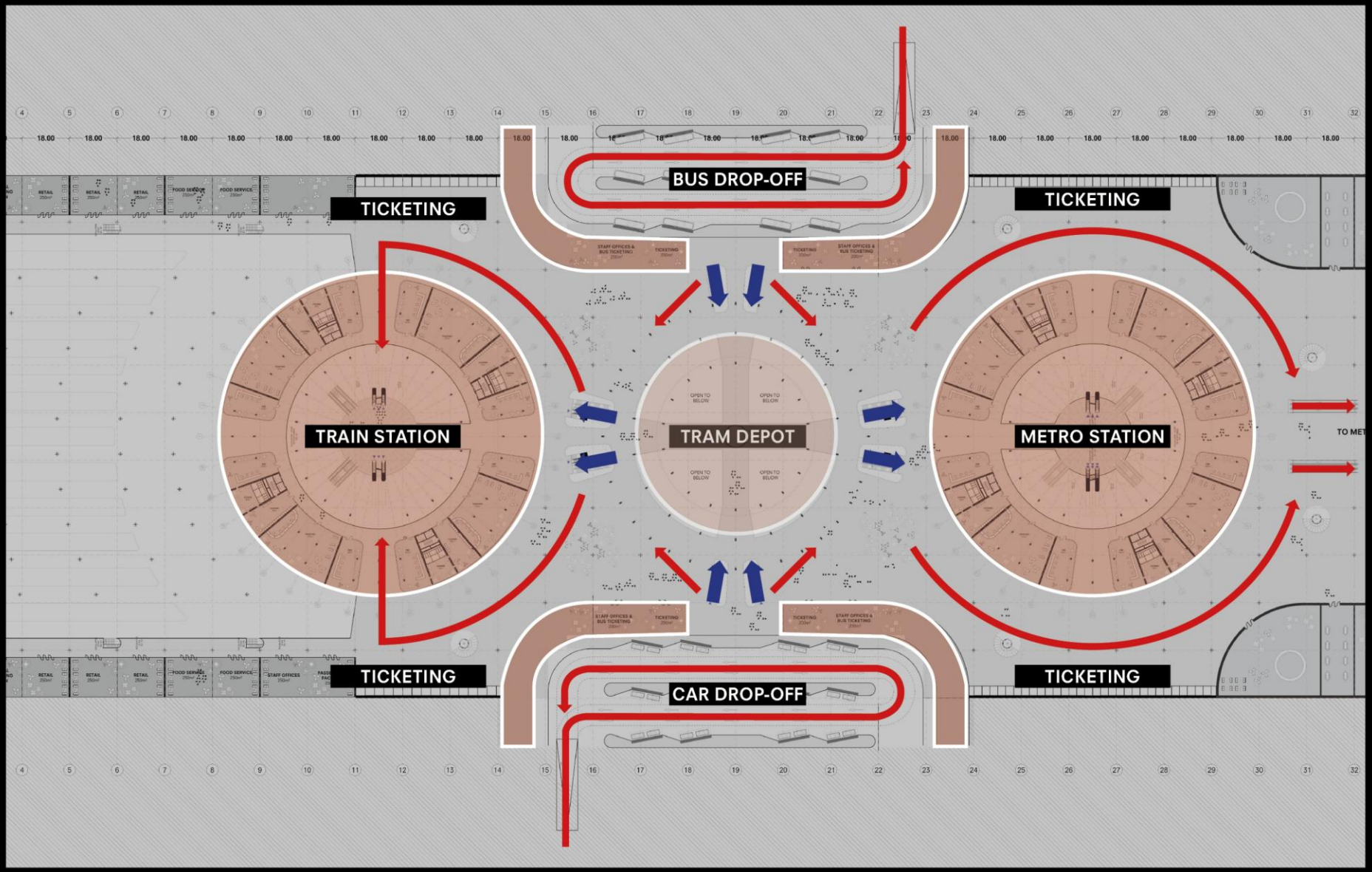
BUS & CAR DROP-OFF



TRAM DEPOT



BUS & CAR DROP-OFF



ARRIVAL

by foot

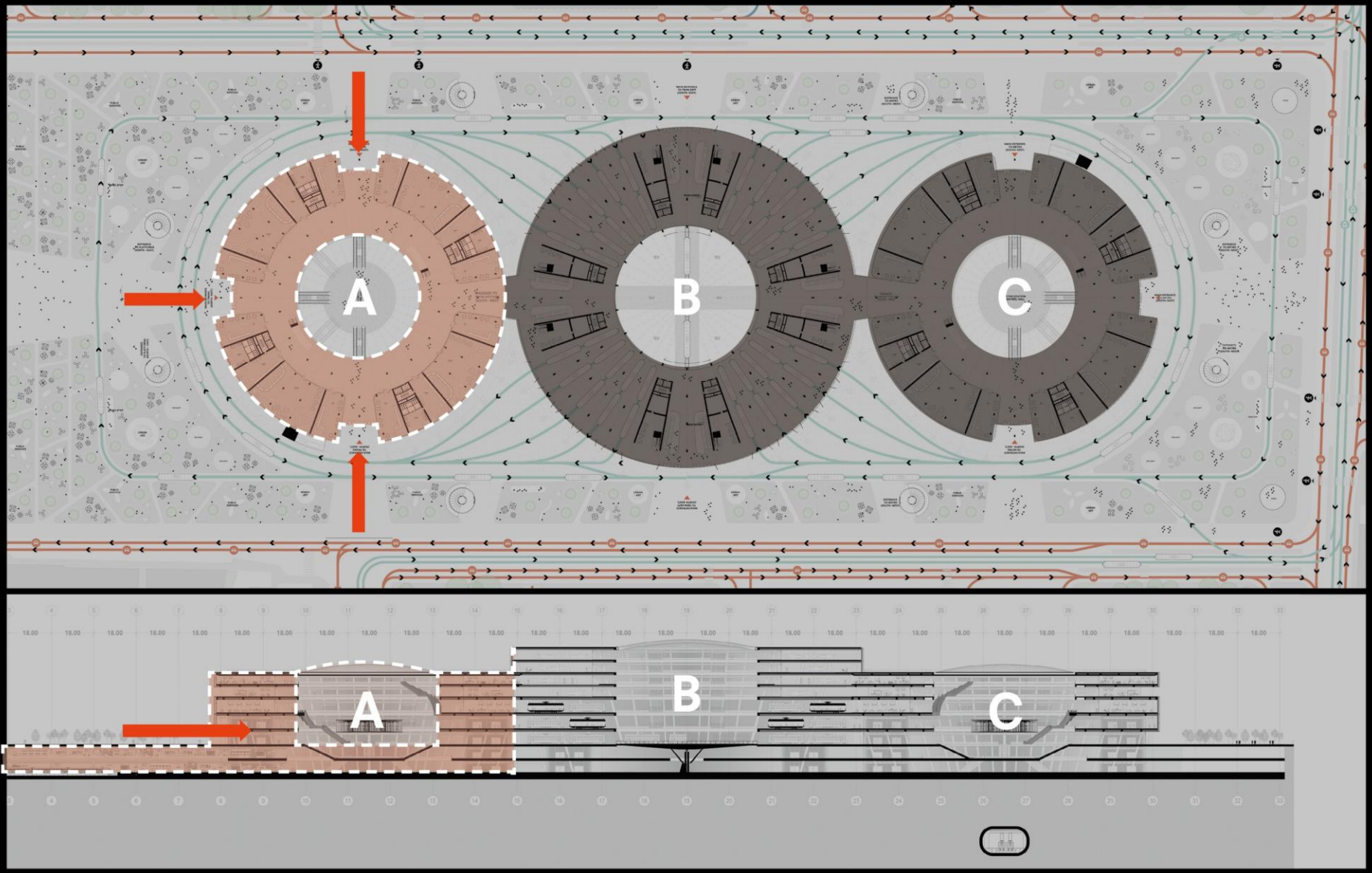
by cars & bus

by train

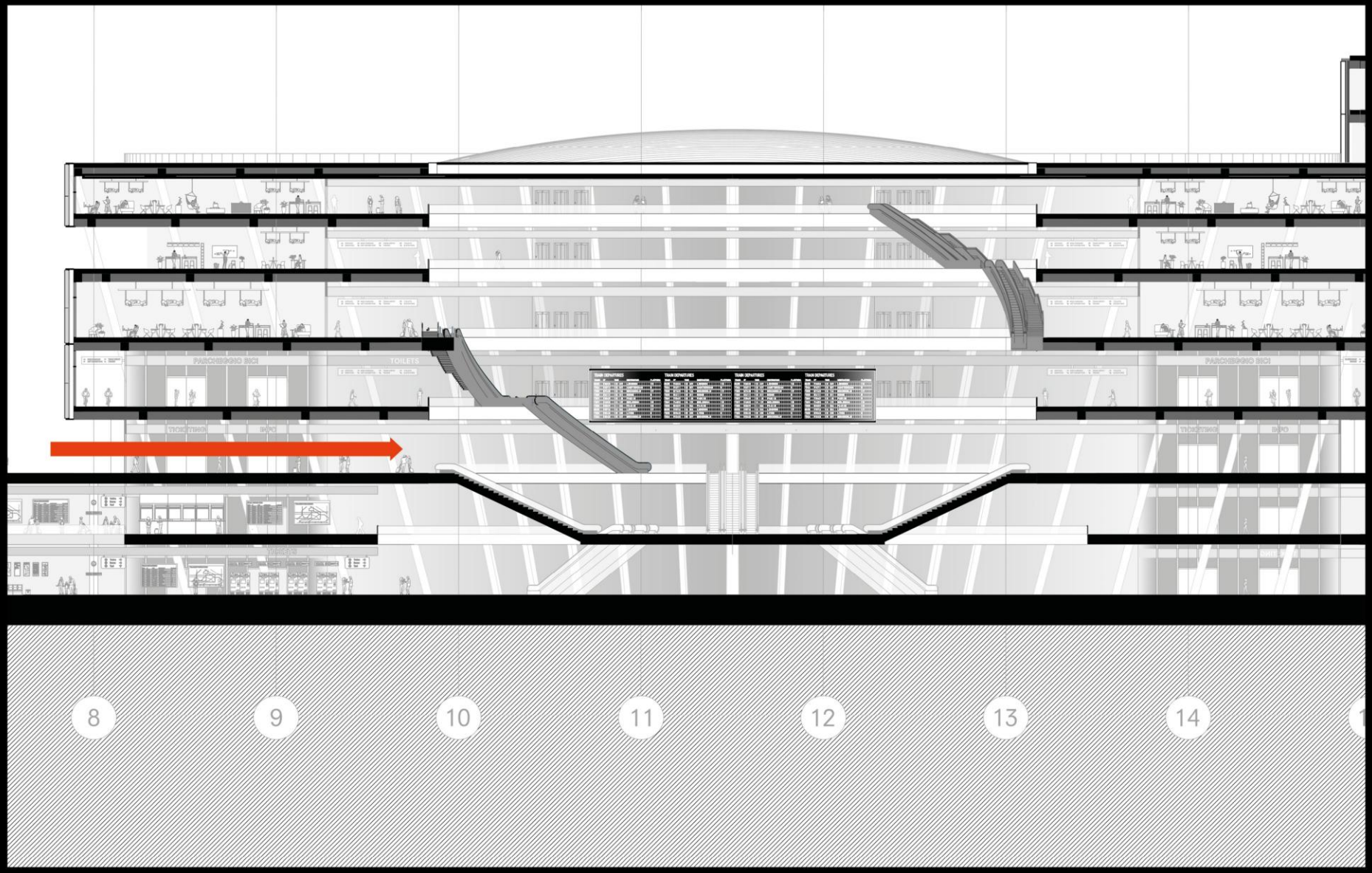
by bike

by tram

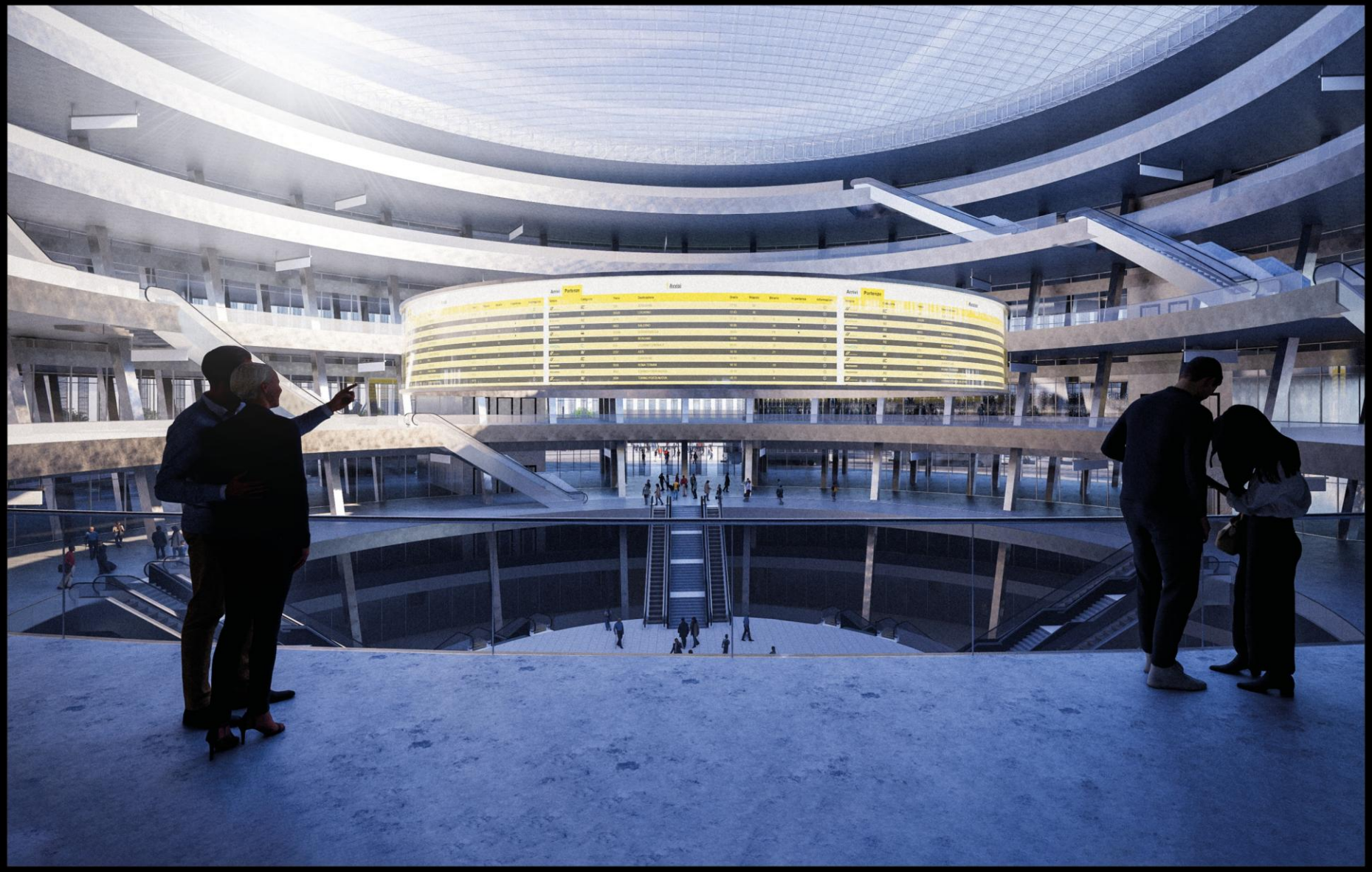
ARRIVAL



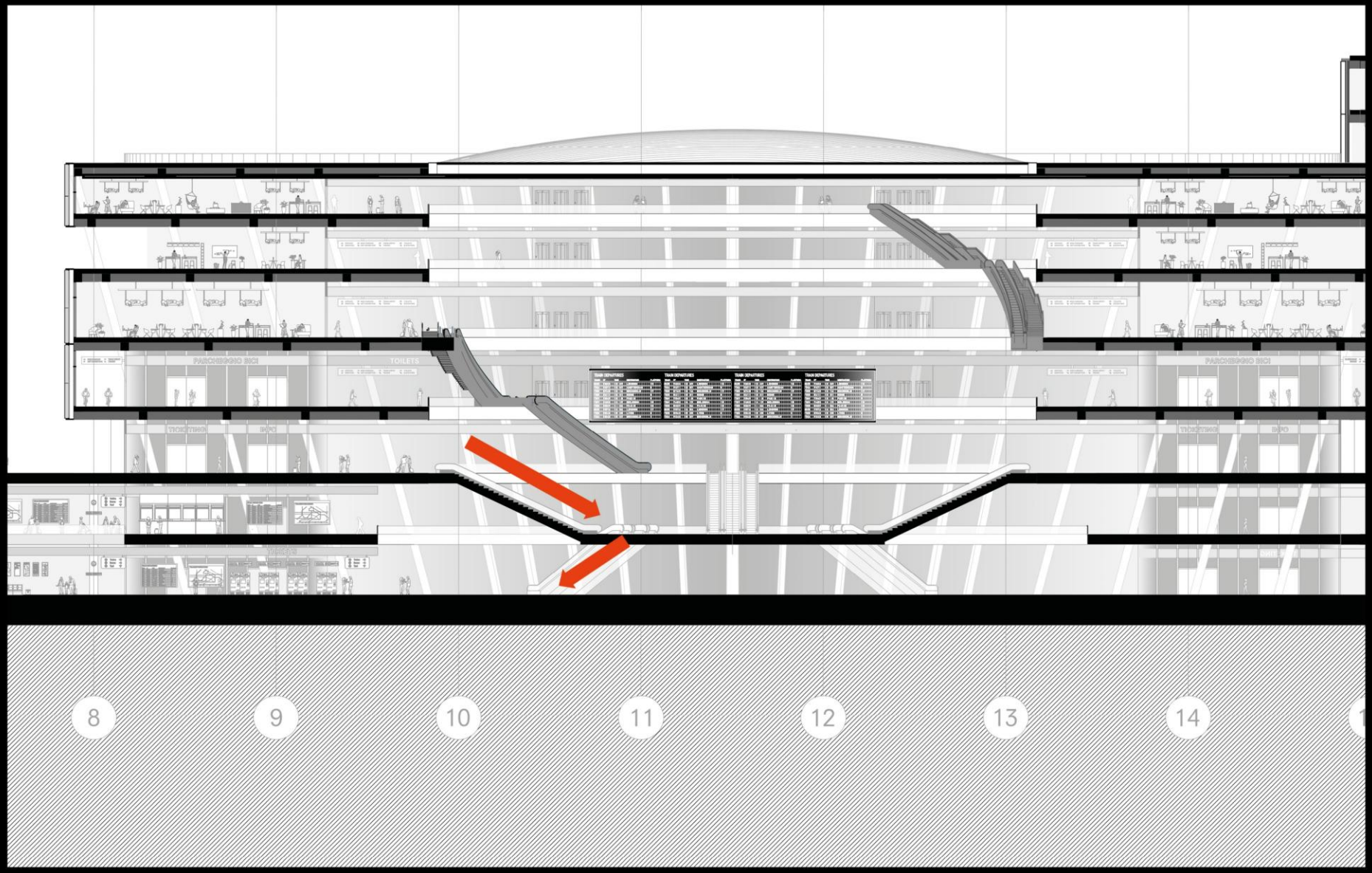
SECTION



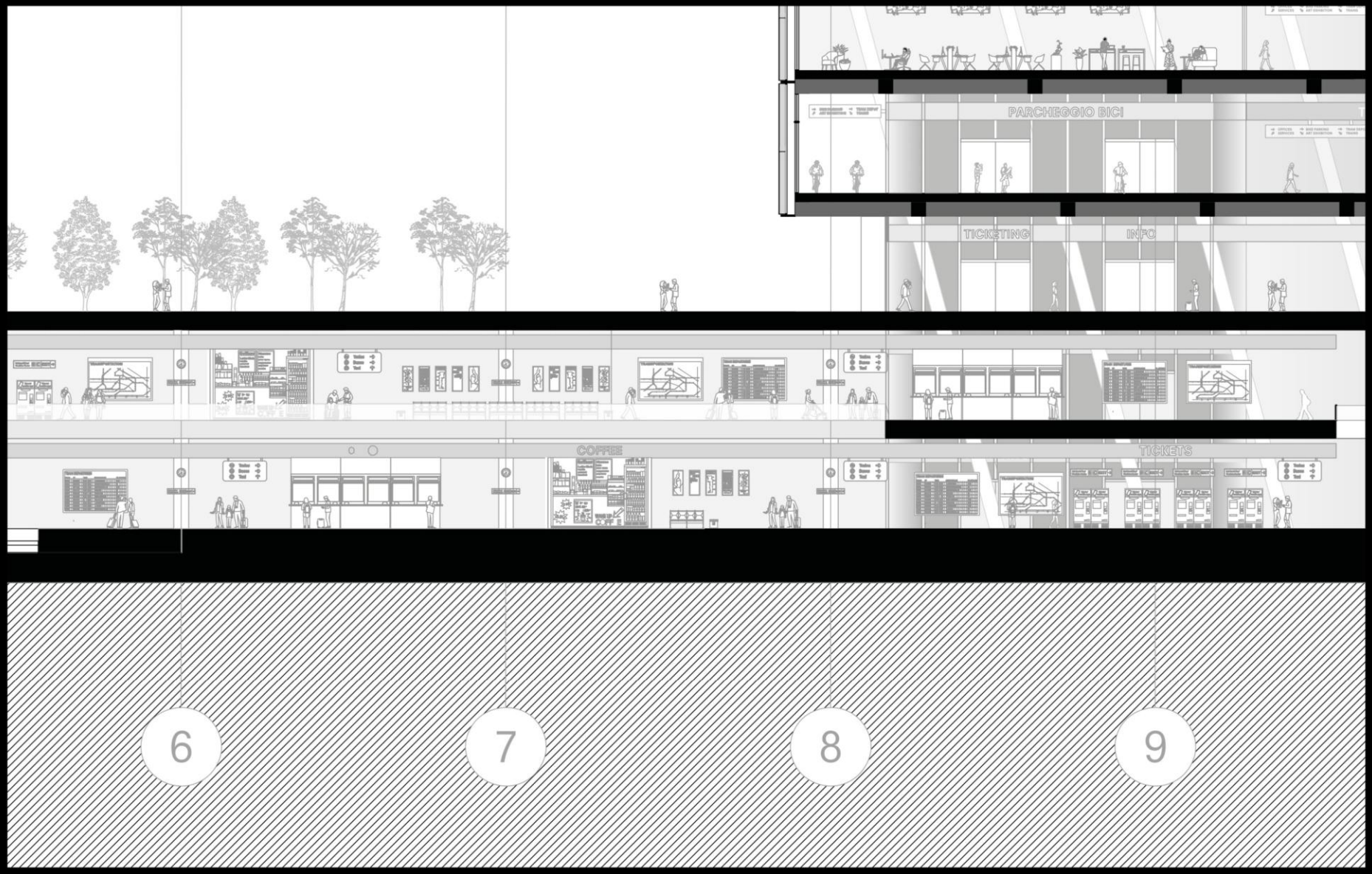
TRAIN TIMETABLE



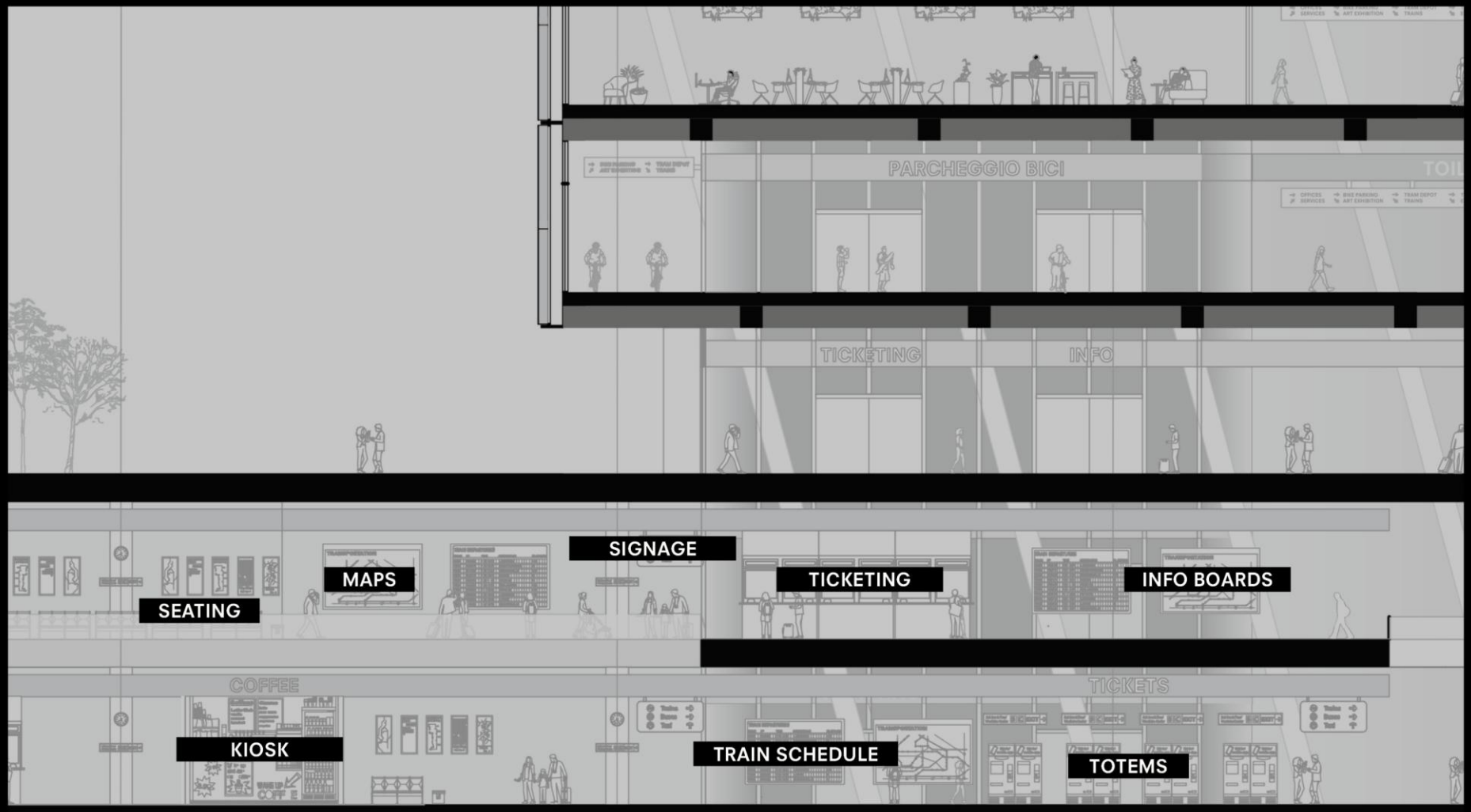
SECTION


PARCHEGGIO BICI
TOILETS
TRAIN DEPARTURES
TRAIN DEPARTURES
TRAIN DEPARTURES
TRAIN DEPARTURES
PARCHEGGIO BICI
TICKETING
INFO
TICKETING
INFO
8
9
10
11
12
13
14

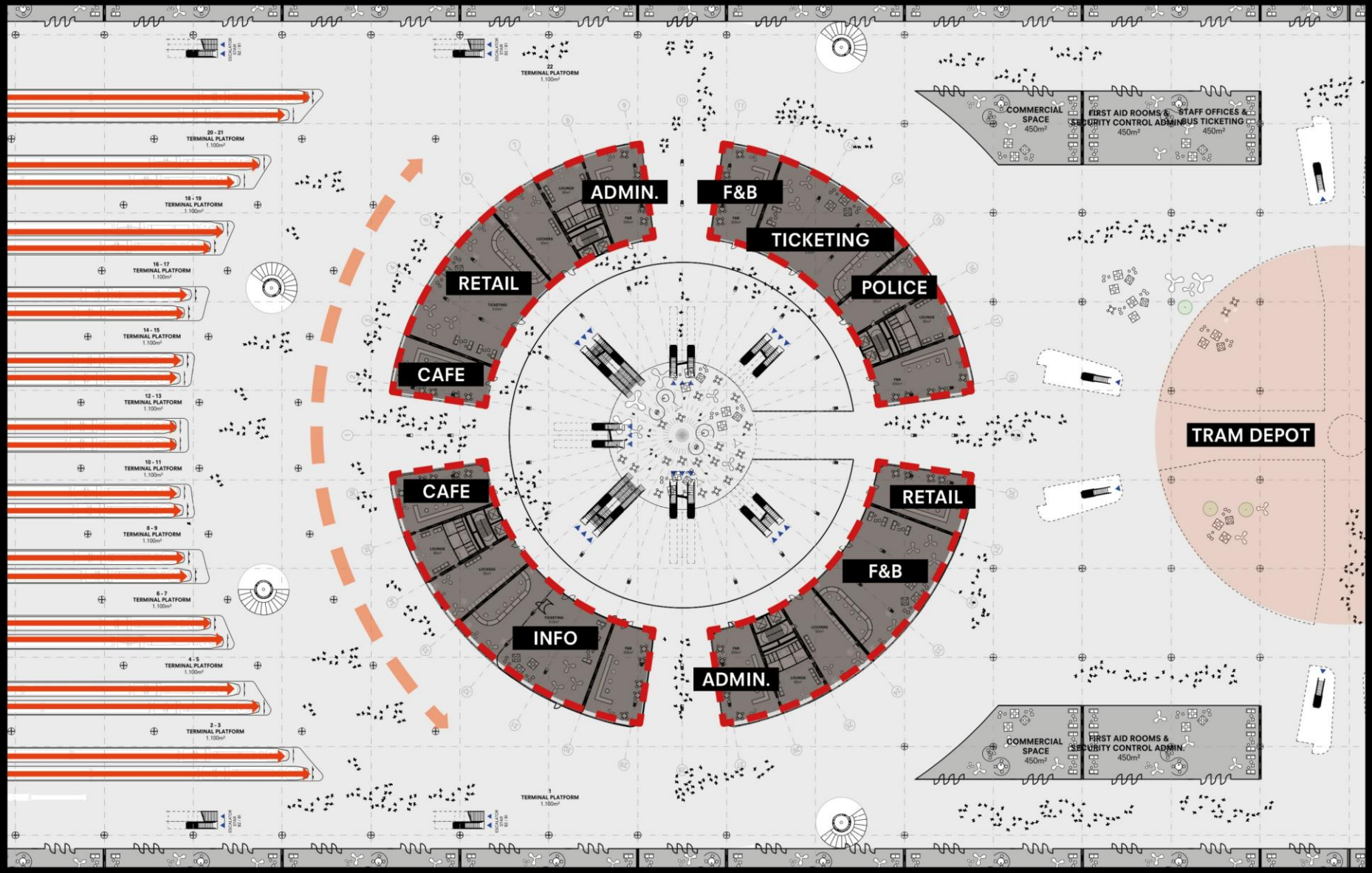
SECTION



SECTION


PARCHEGGIO BICI
TICKETING
INFO
SIGNAGE
MAPS
SEATING
TICKETING
INFO BOARDS
COFFEE
TICKETS
KIOSK
TRAIN SCHEDULE
TOTEMS

TRAIN STATION



TRAIN PLATFORMS

on the move

ARRIVAL

by foot

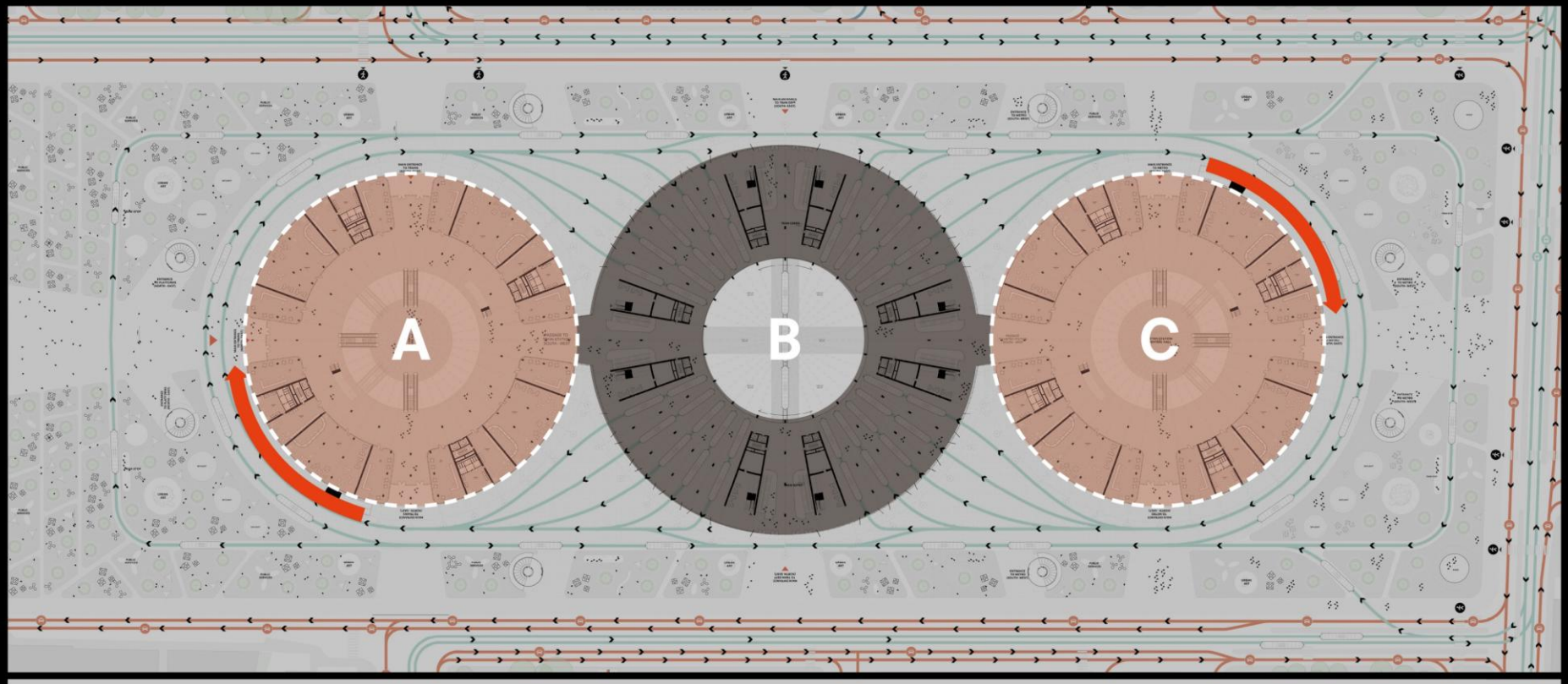
by cars & bus

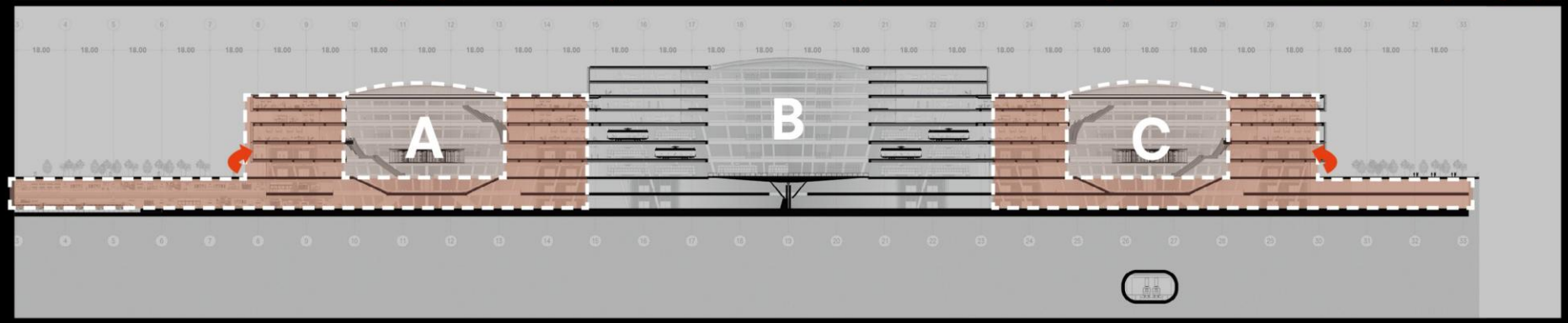
by train

by bike

by tram

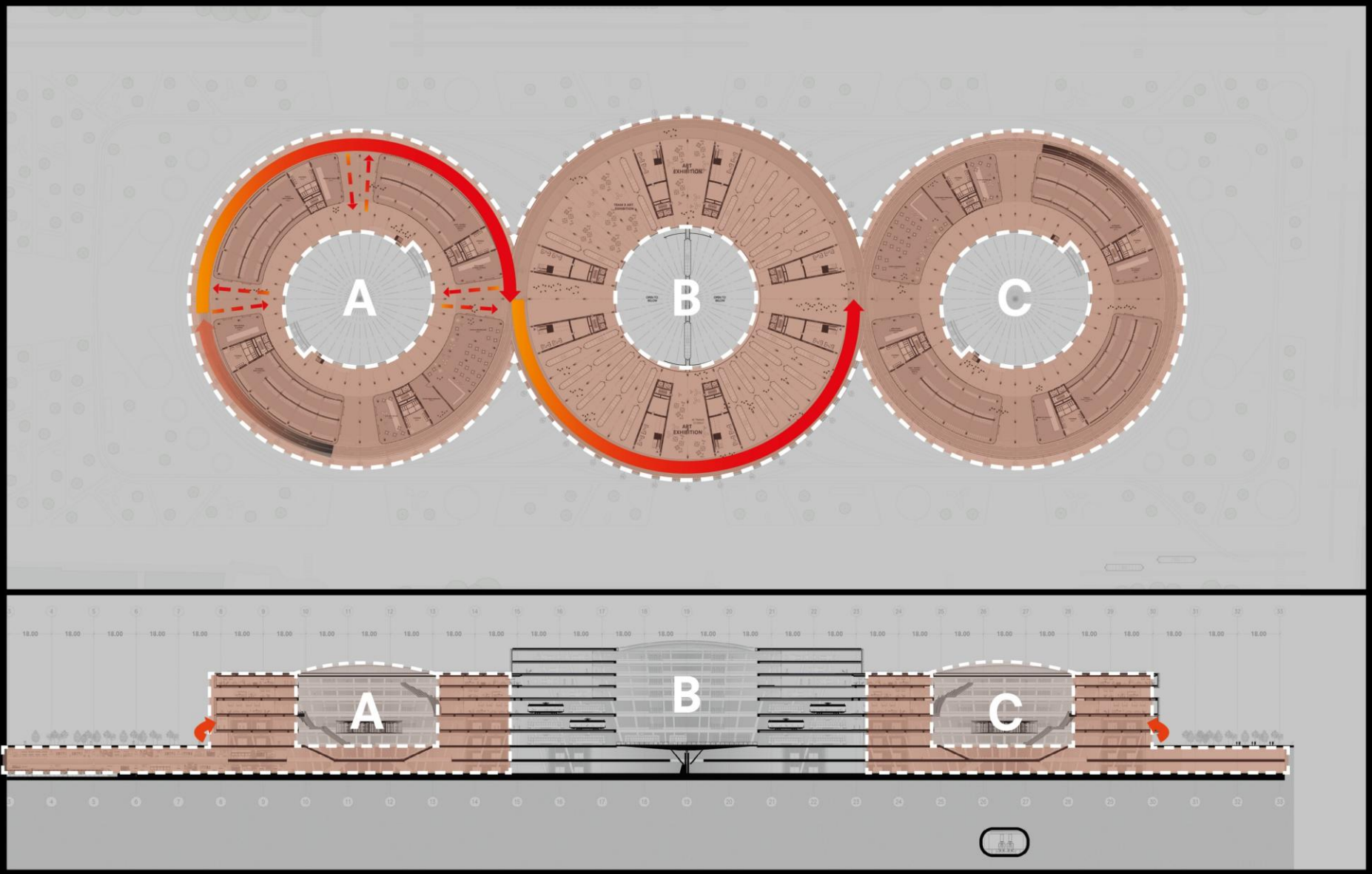
ARRIVAL





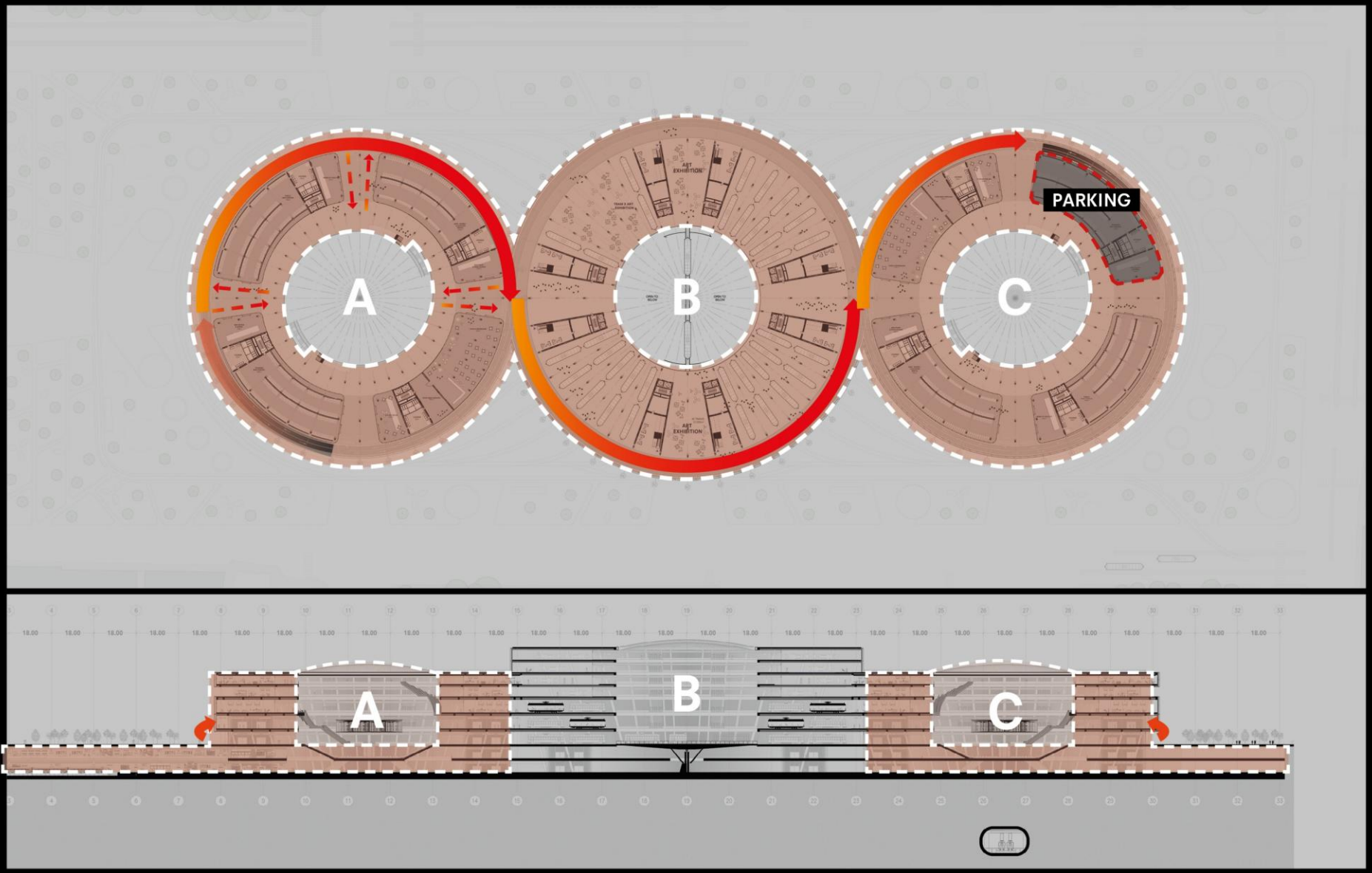
BICYCLE RAMP

ARRIVAL

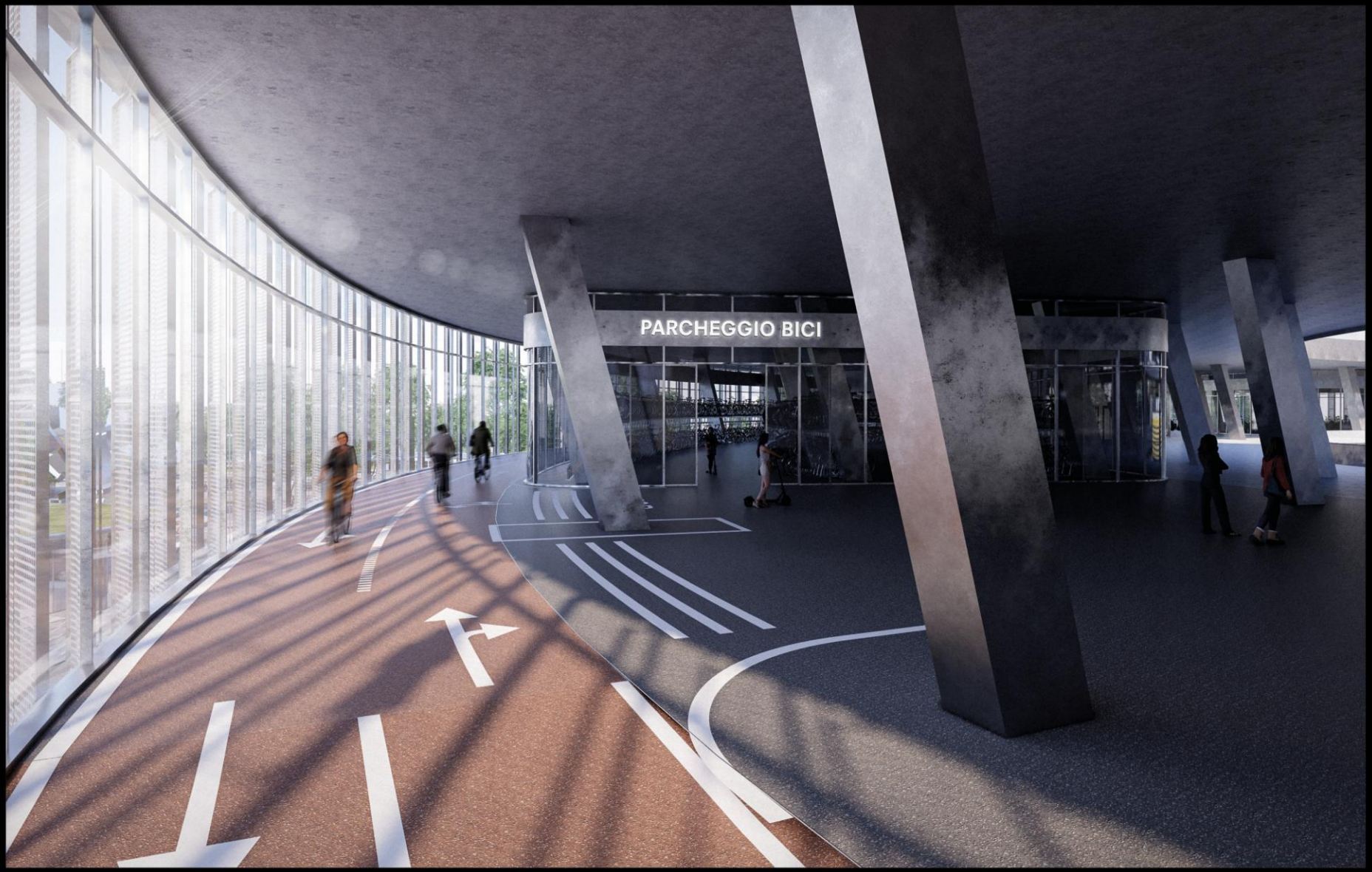


BICYCLE JOURNEY

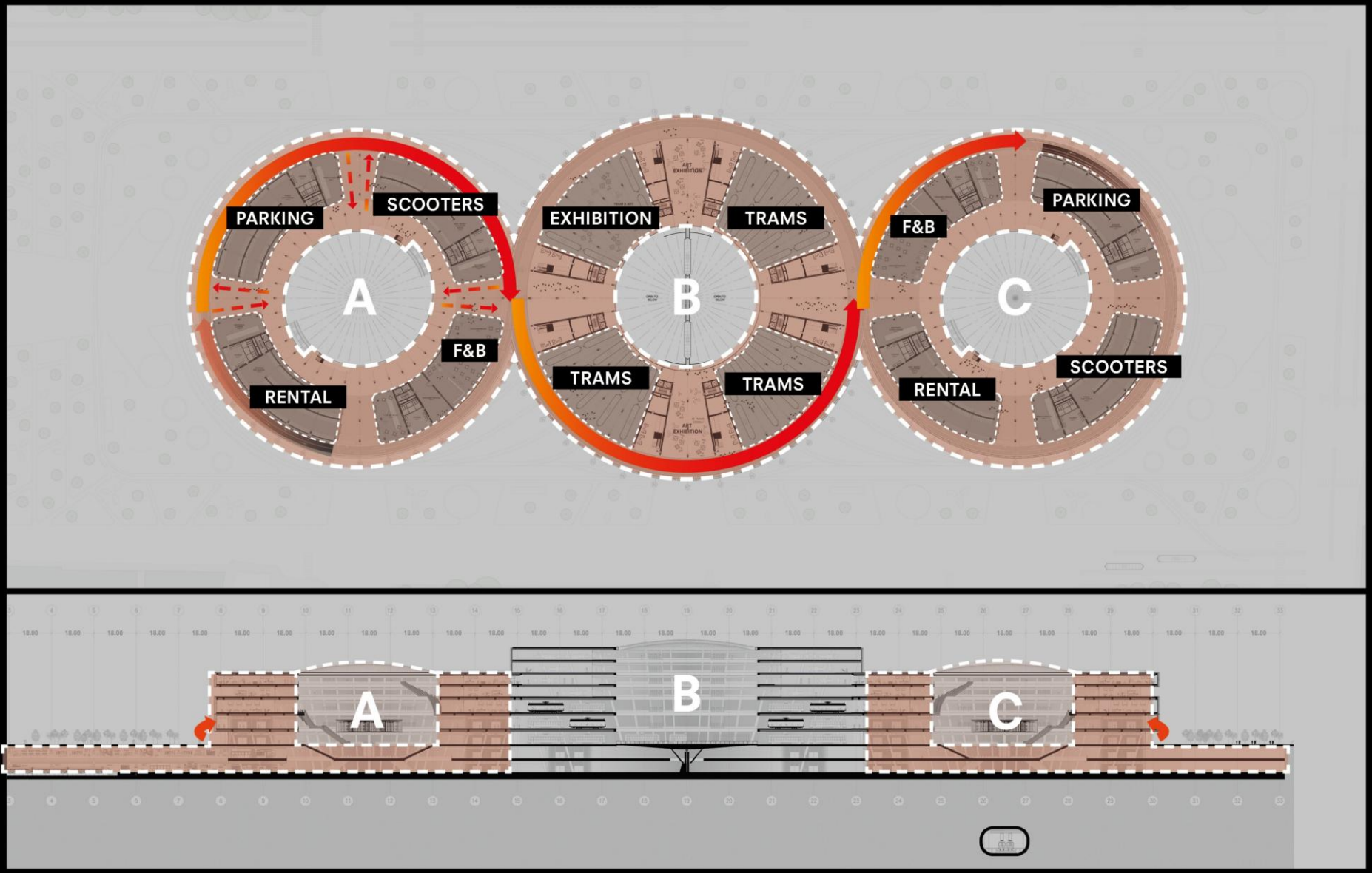
ARRIVAL



PARKING & RENTAL



ARRIVAL


PARKING
SCOOTERS
A
F&B
RENTAL
EXHIBITION
TRAMS
B
TRAMS
TRAMS
F&B
PARKING
C
SCOOTERS
RENTAL
A
B
C

on the move

ARRIVAL

by foot

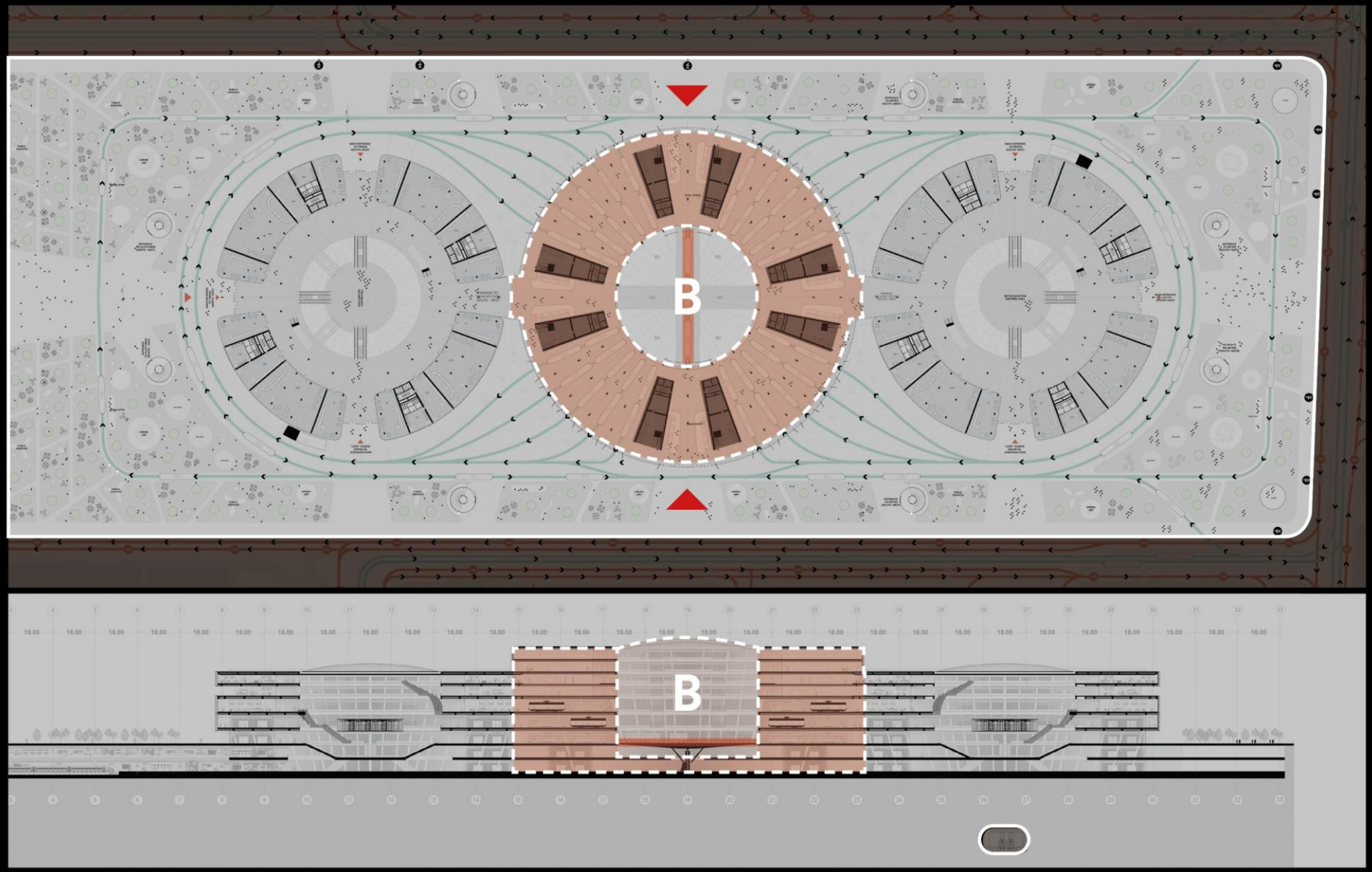
by cars & bus

by train

by bike

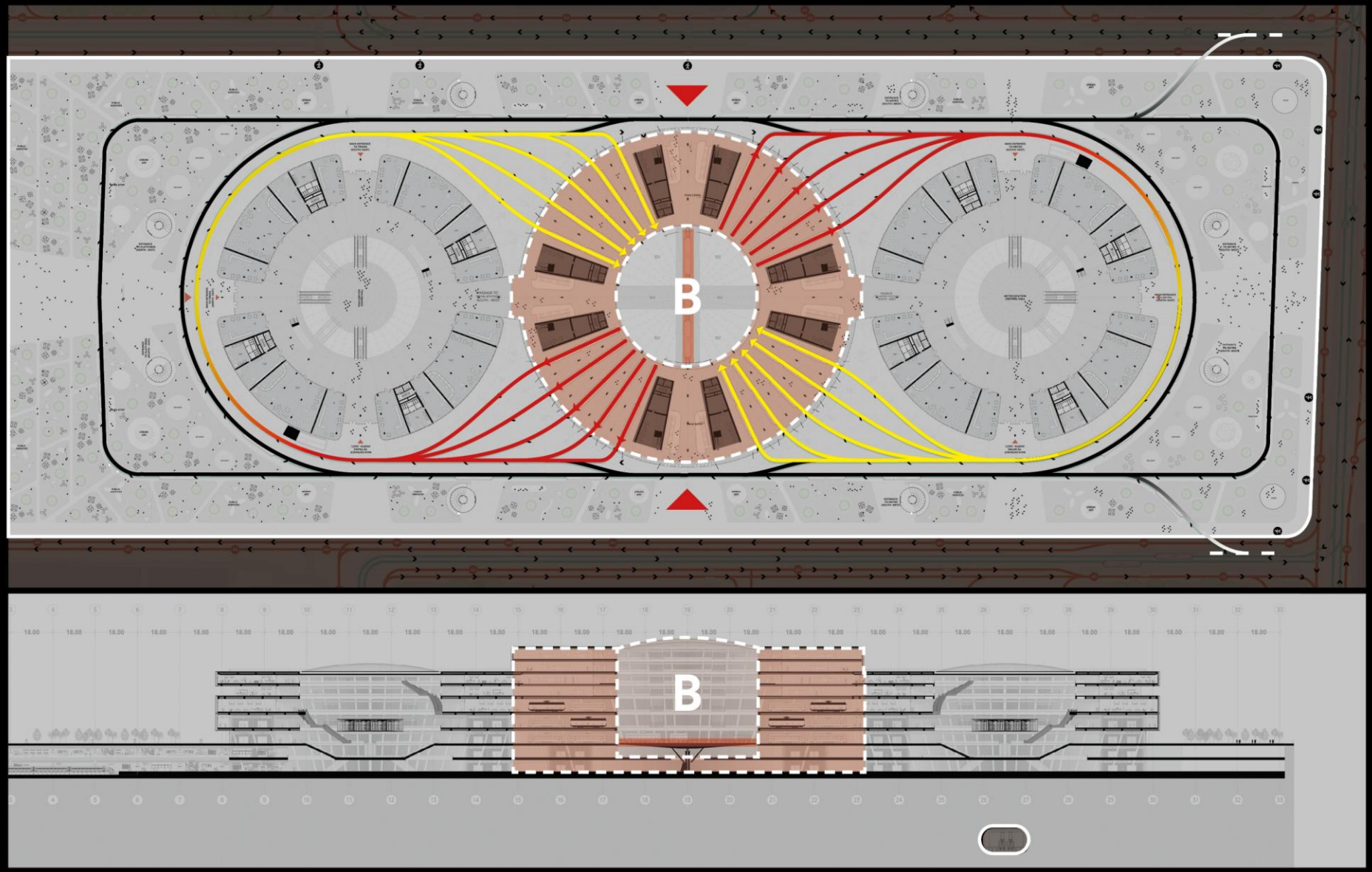
by tram

ARRIVAL



TRAM DEPOT ENTRANCE

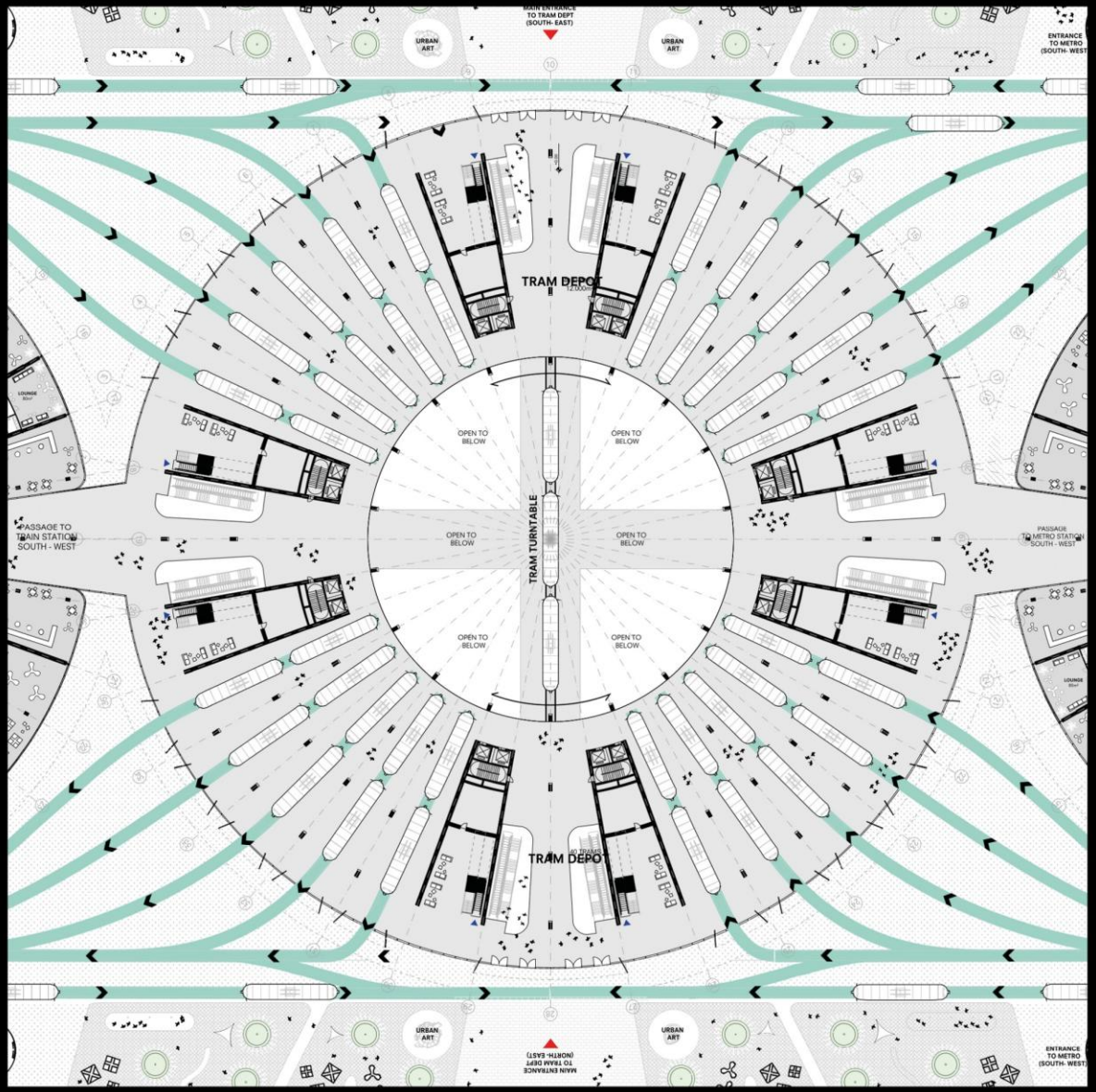
TRAMWAYS LOOP



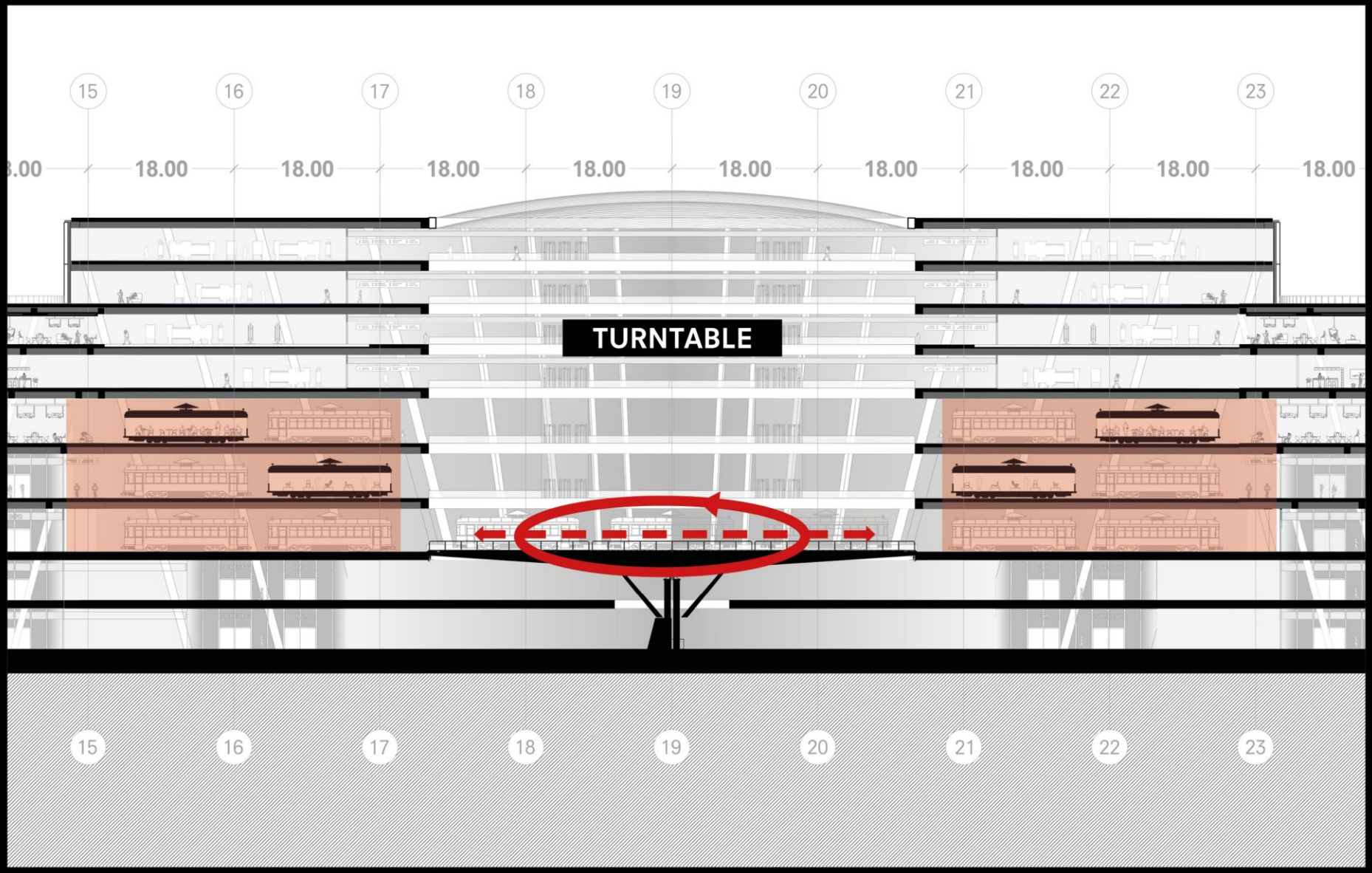
TRAMWAYS LOOP

TRAM DEPOT GATES

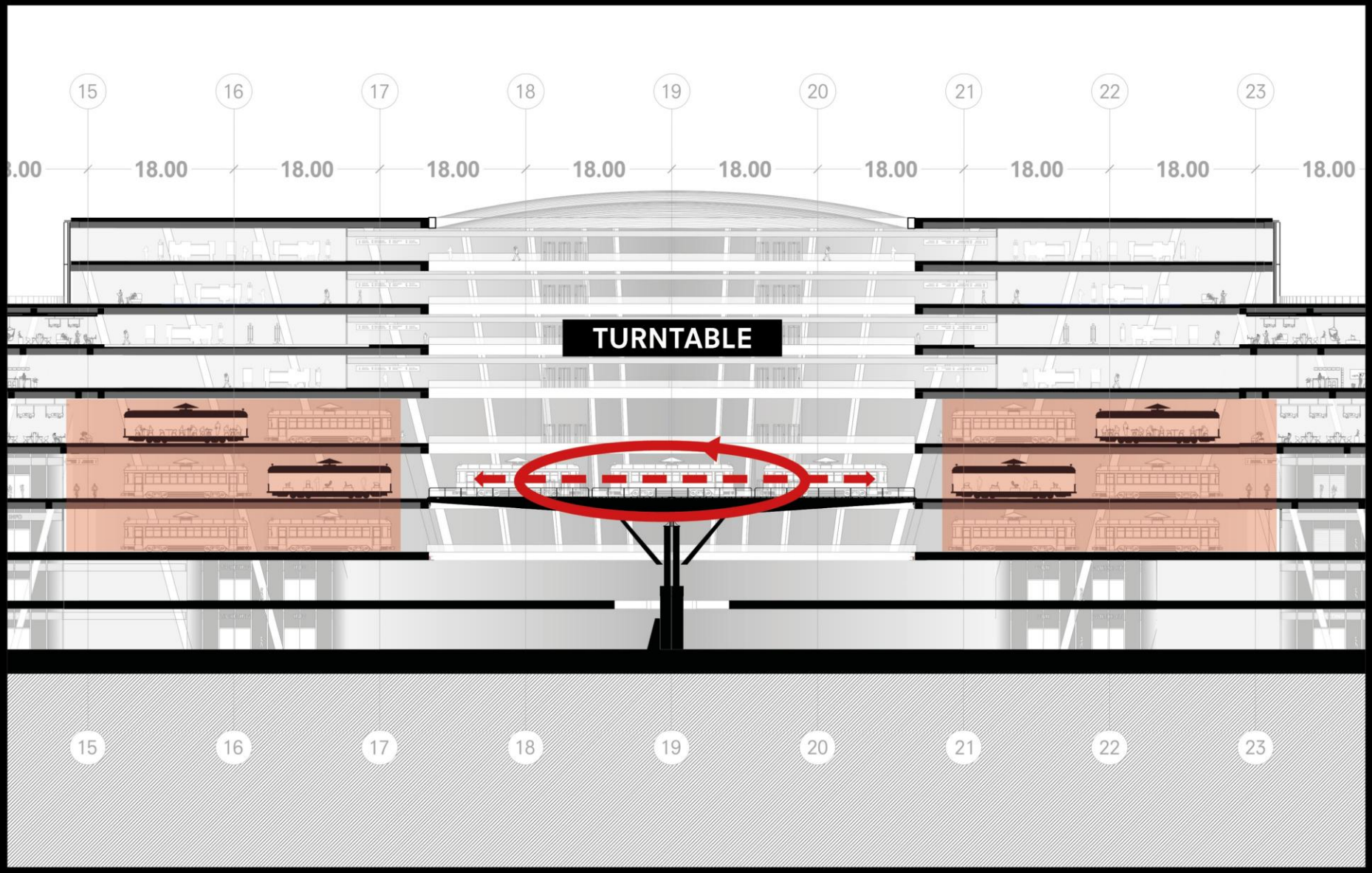
TRAM DEPOT


MAIN ENTRANCE TO TRAM DEPT (NORTH- EAST)
URBAN ART
URBAN ART
ENTRANCE TO METRO (NORTH- WEST)
TRAM DEPOT
TRAM DEPOT
TRAM TURNTABLE
OPEN TO BELOW
OPEN TO BELOW
OPEN TO BELOW
OPEN TO BELOW
OPEN TO BELOW
OPEN TO BELOW
PASSAGE TO TRAIN STATION SOUTH - WEST
PASSAGE TO METRO STATION SOUTH - WEST
LOUNGE
LOUNGE
URBAN ART
URBAN ART
MAIN ENTRANCE TO TRAM DEPT (SOUTH- EAST)
ENTRANCE TO METRO (SOUTH- WEST)

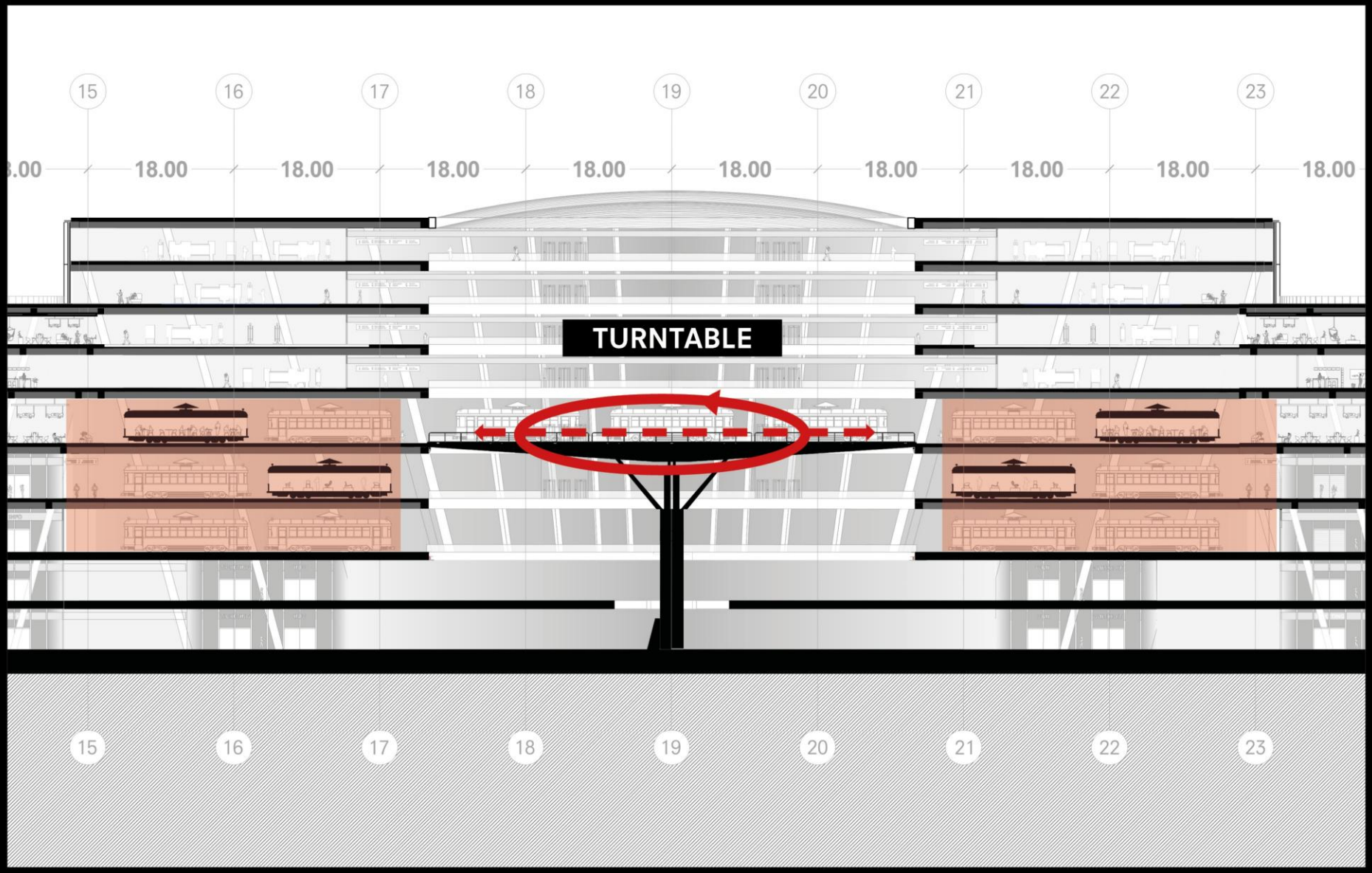
TRAM DEPOT



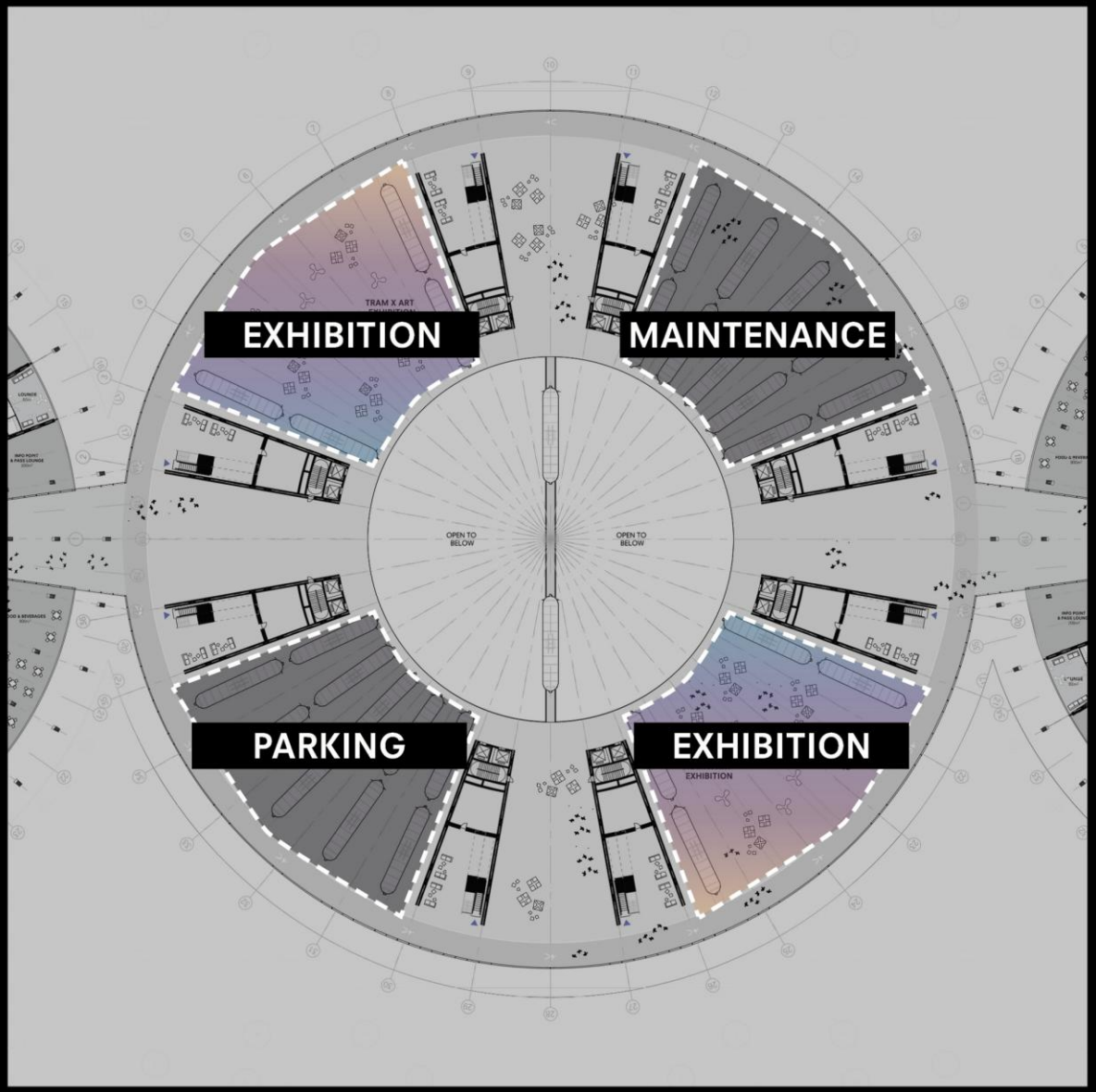
TRAM DEPOT



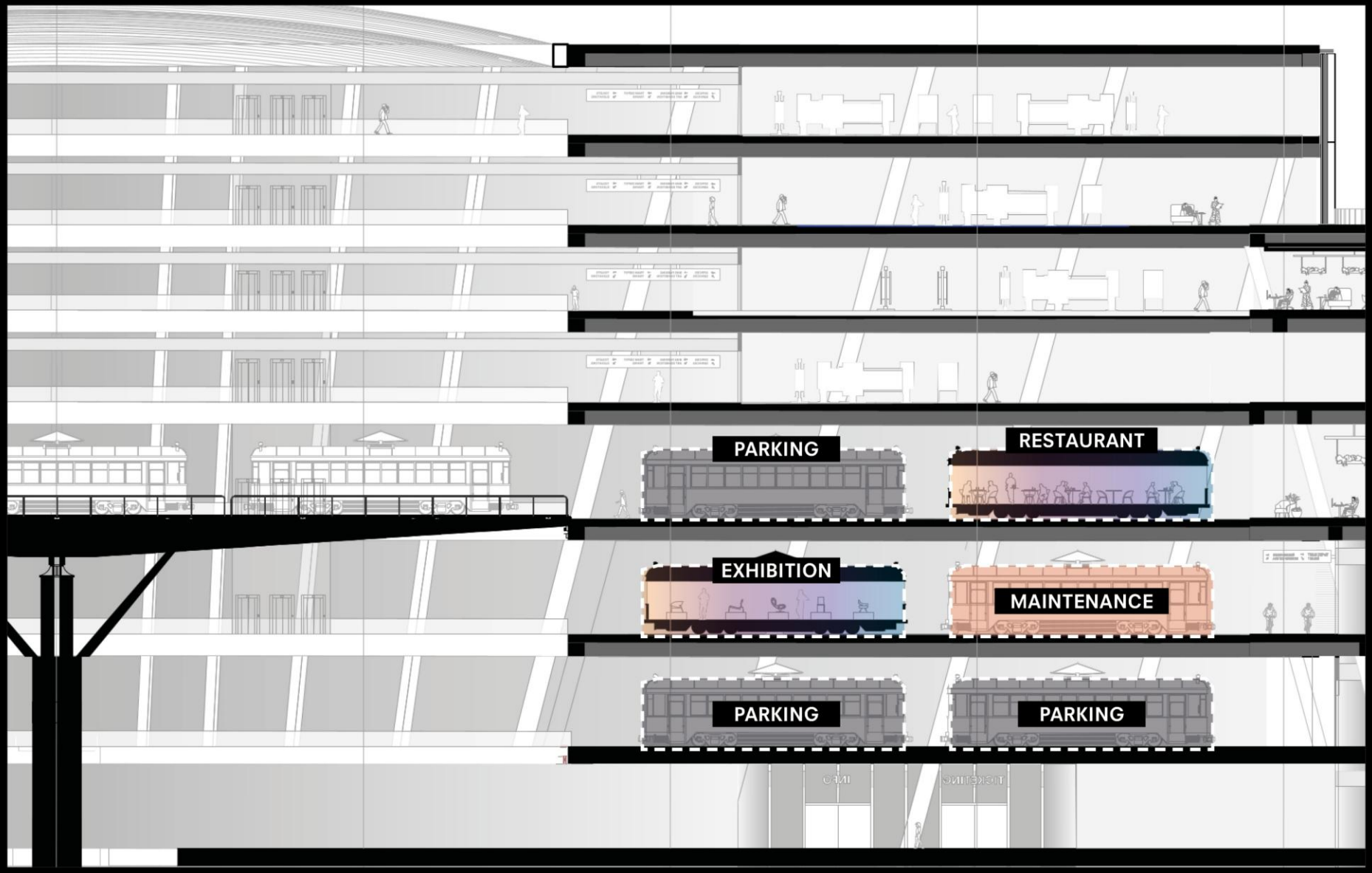
TRAM DEPOT



TRAM DEPOT


EXHIBITION
MAINTENANCE
PARKING
EXHIBITION
OPEN TO BELOW
OPEN TO BELOW
TRAM X ART
EXHIBITION

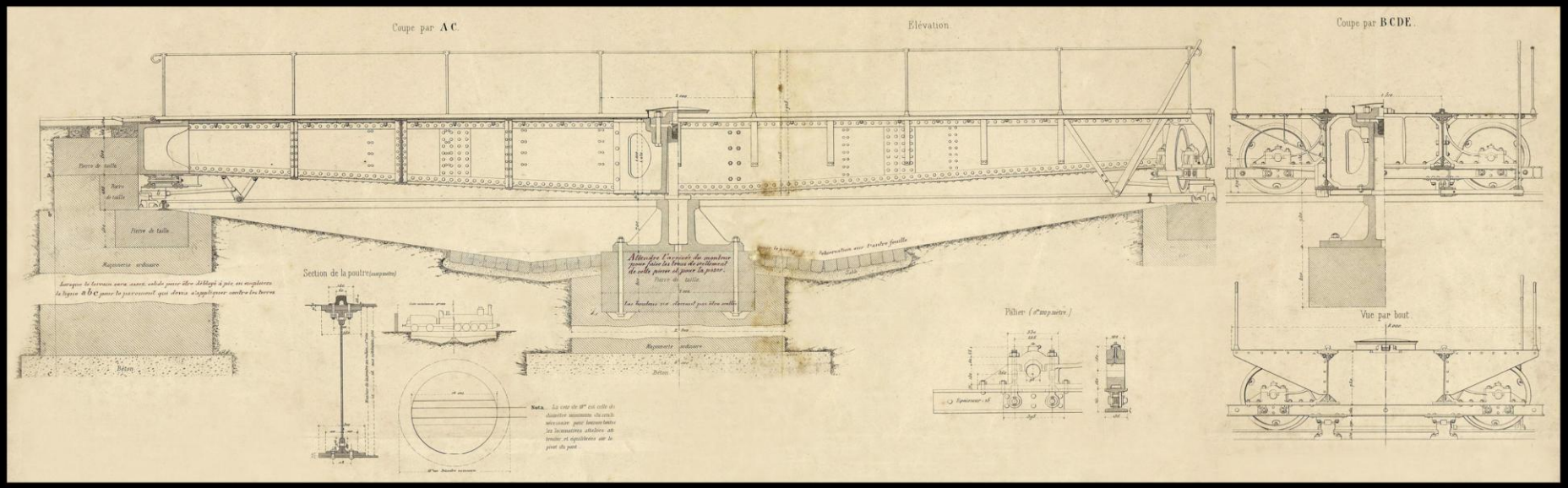
TRAM DEPOT


PARKING
RESTAURANT
EXHIBITION
MAINTENANCE
PARKING
PARKING

TRAM DEPOT TURNTABLE

HISTORICAL TURNTABLE

HISTORICAL TURNTABLE



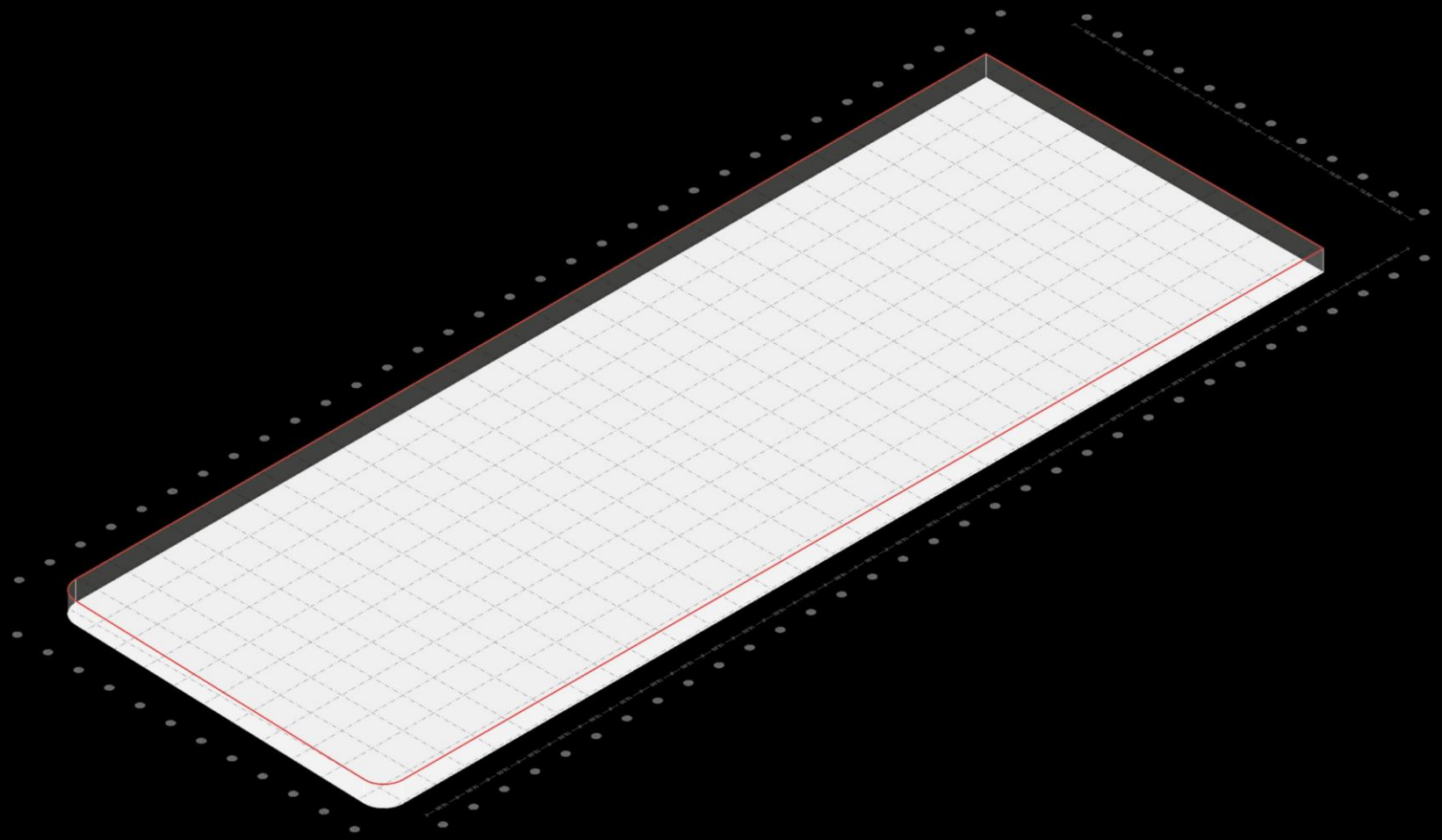
structure

facade

climate

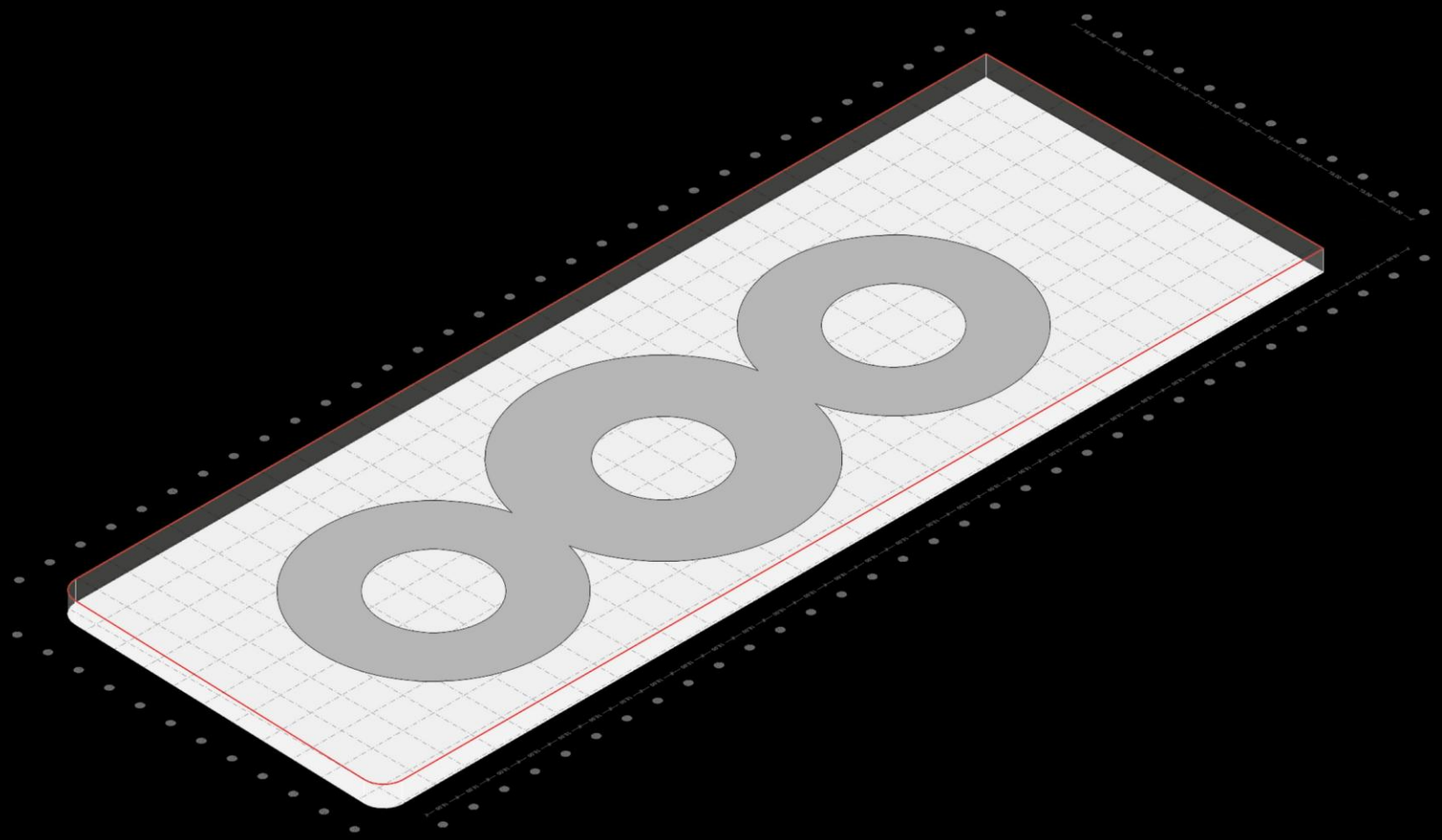
implementation

GRID 18X18



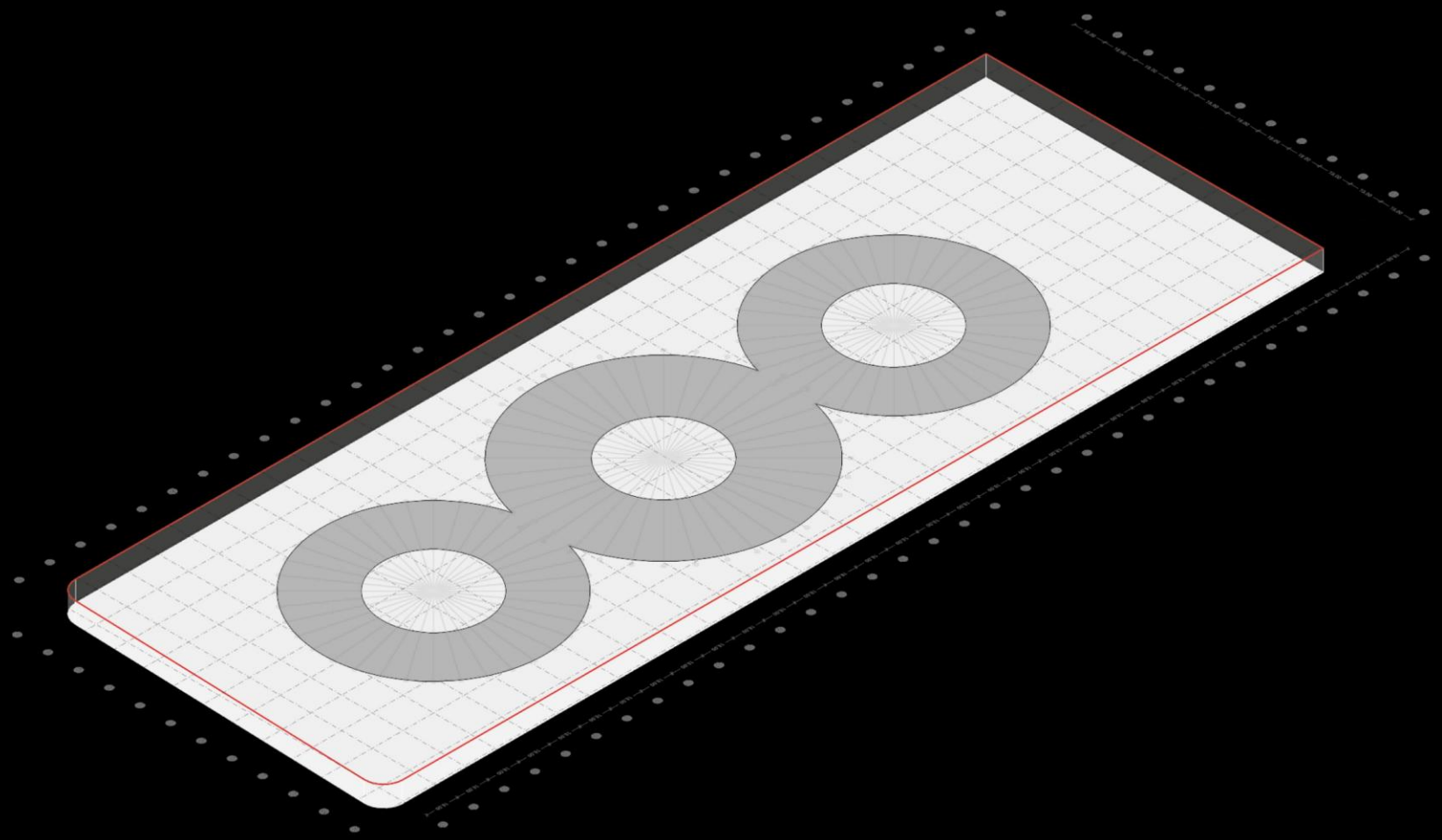
implementation

3 CIRCLES



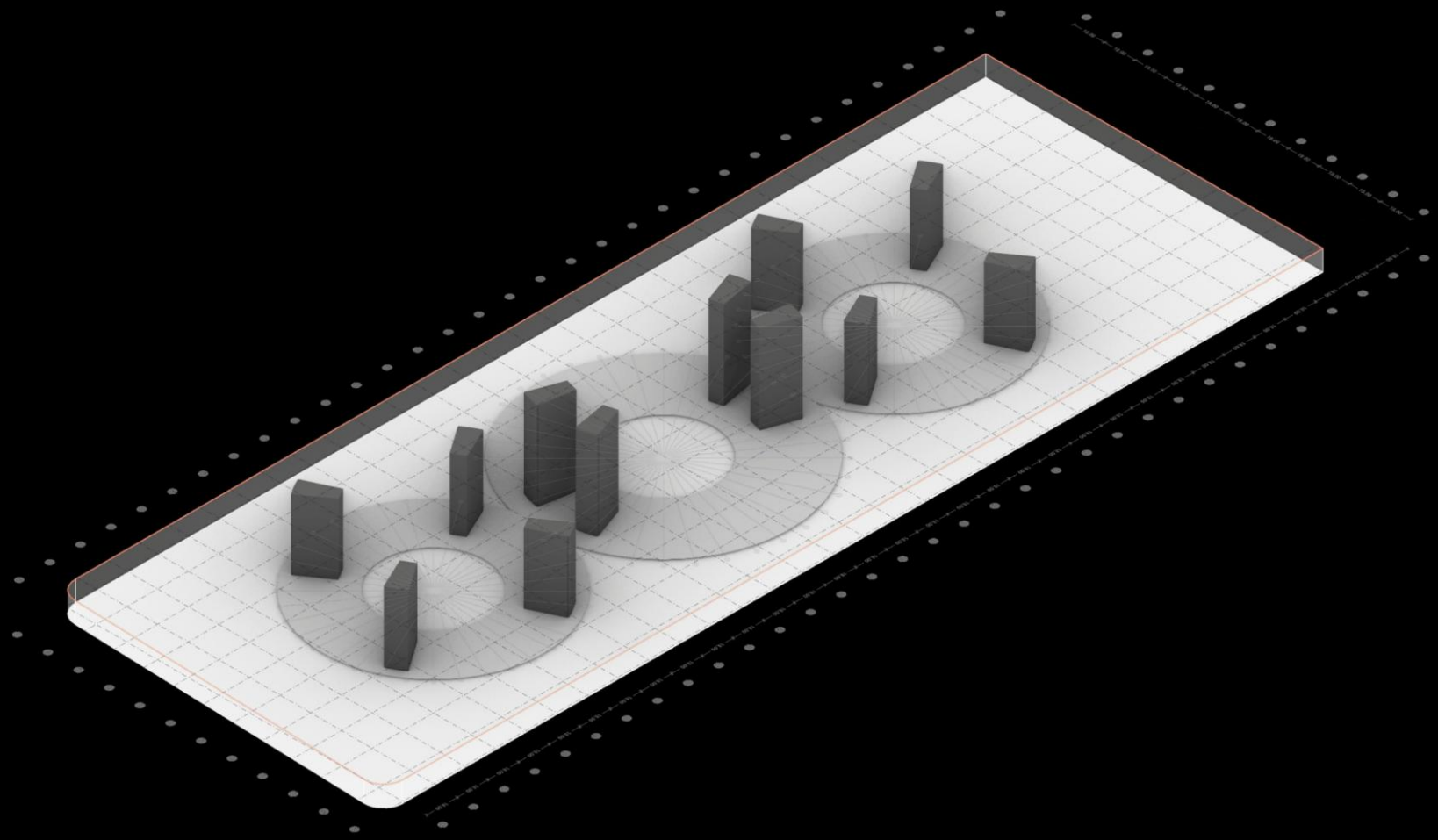
implementation

3 RADIAL GRID



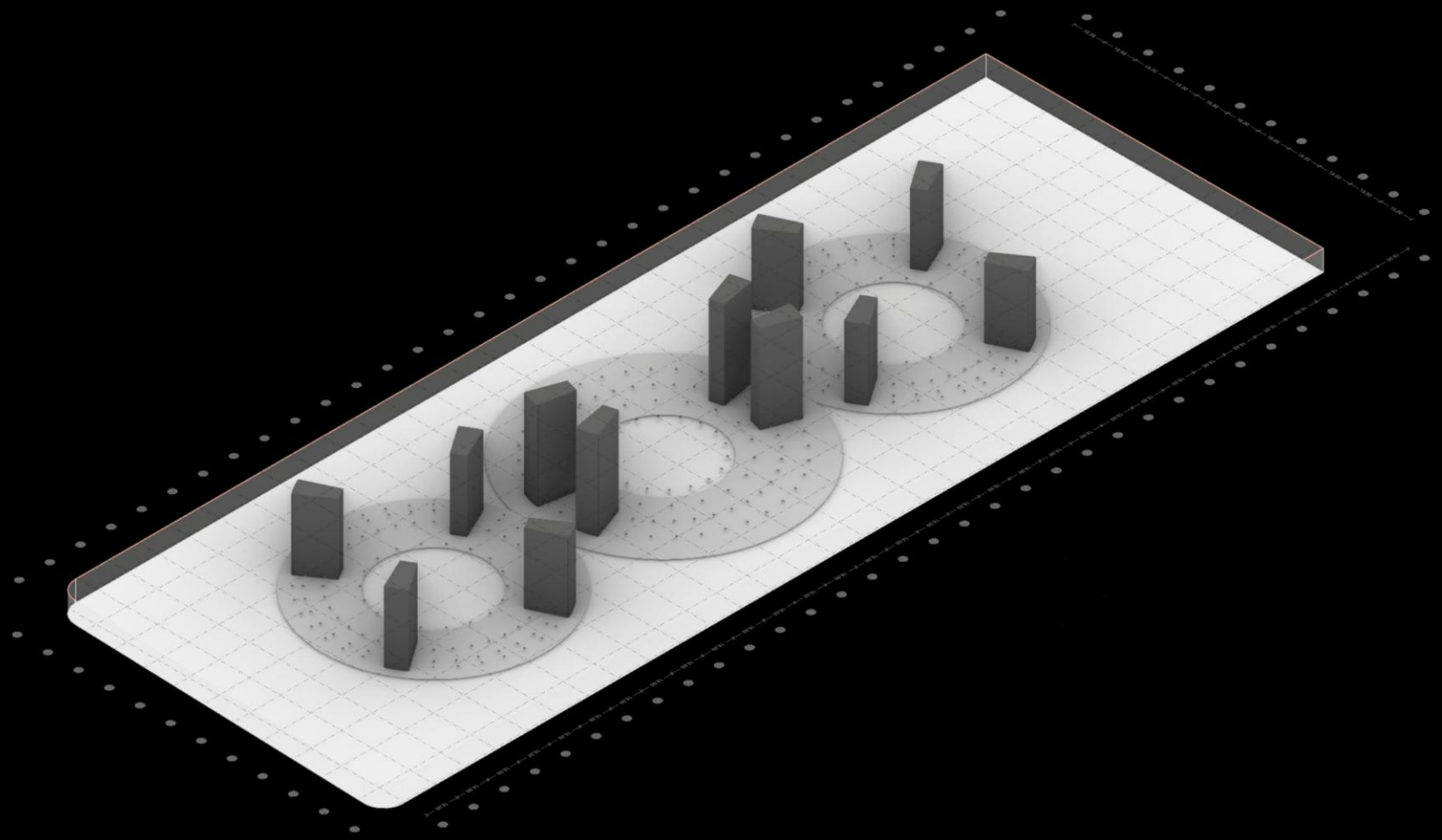
implementation

CORES



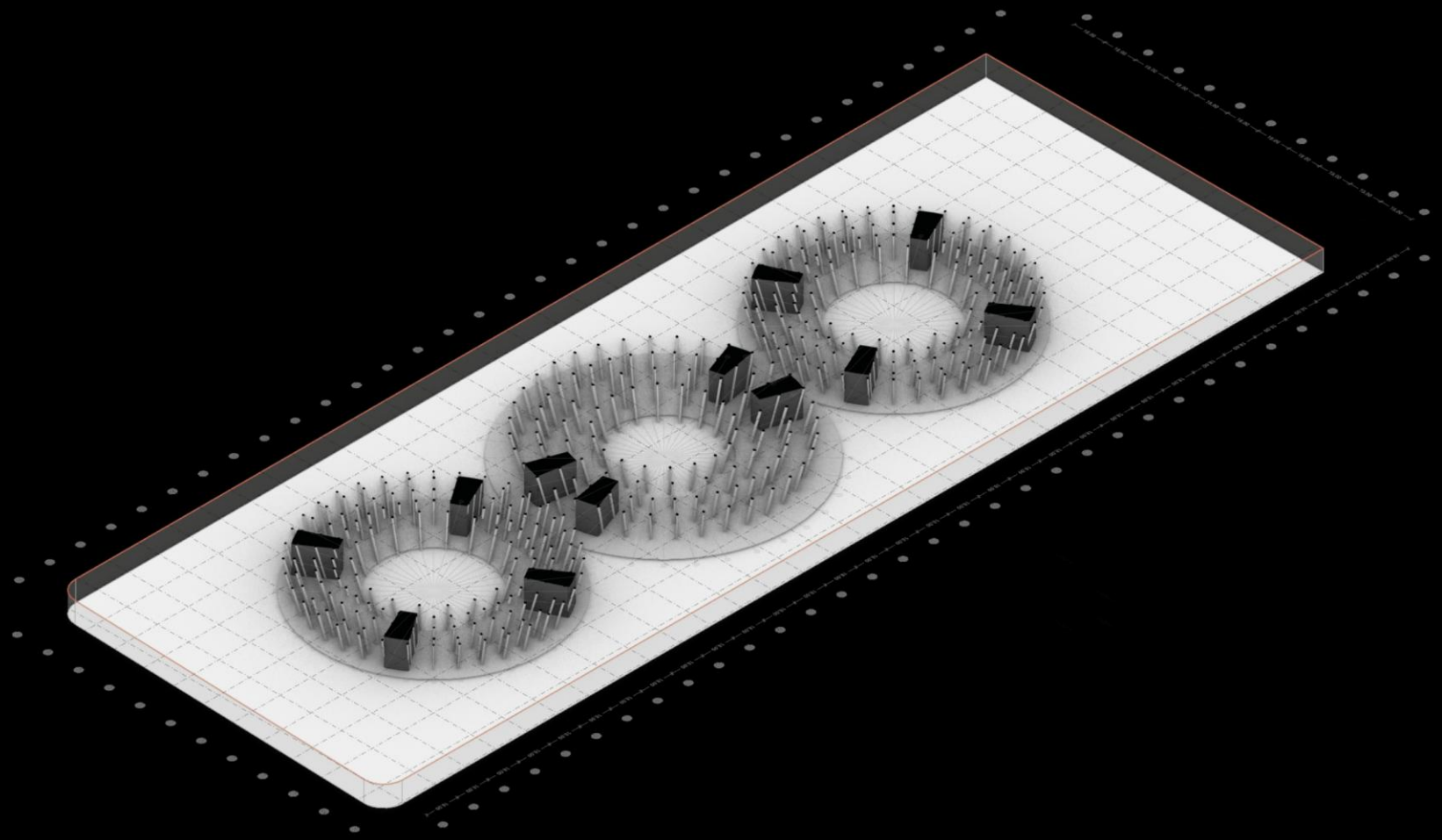
implementation

SLANTED COLUMNS



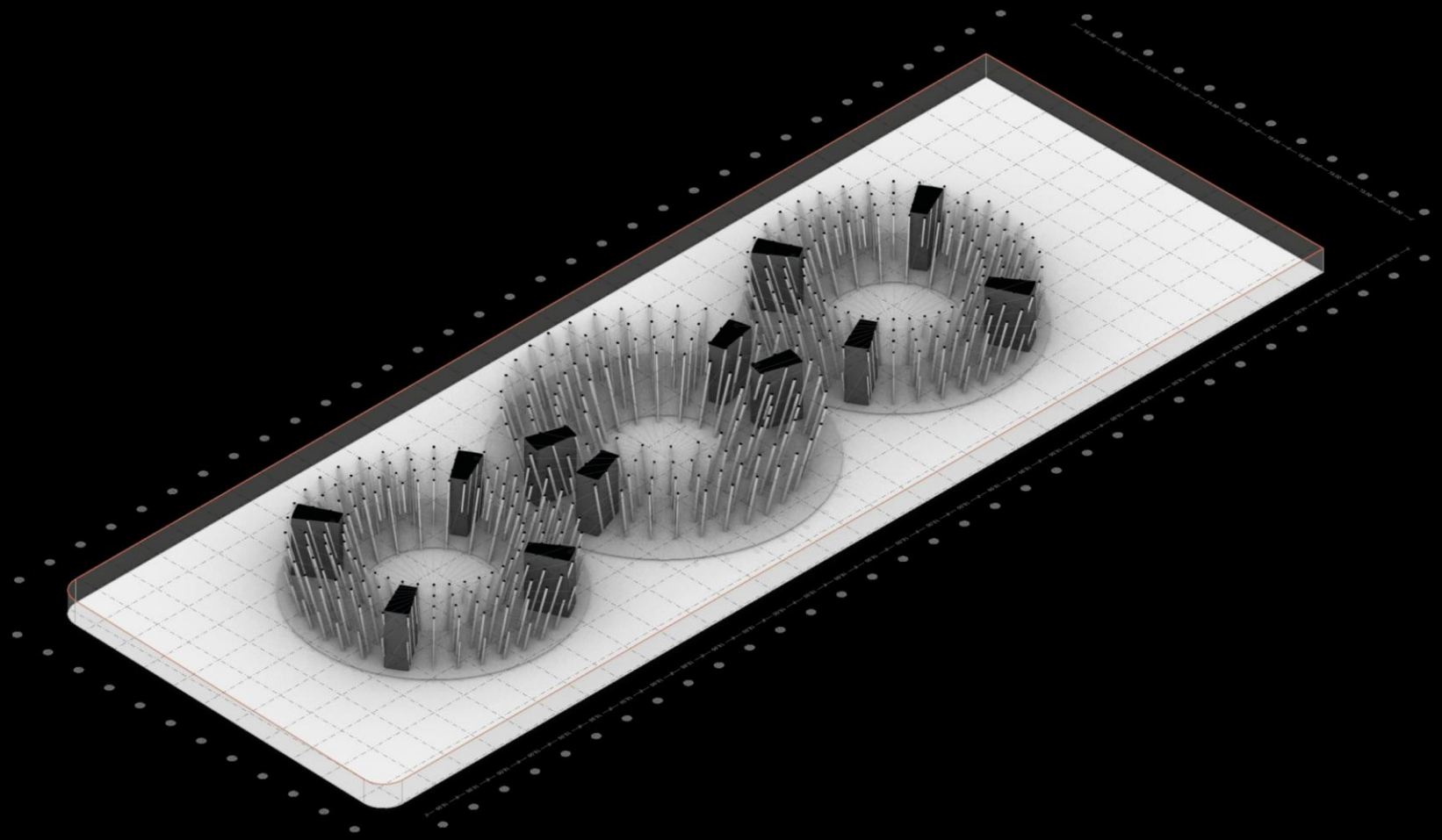
implementation

SLANTED COLUMNS



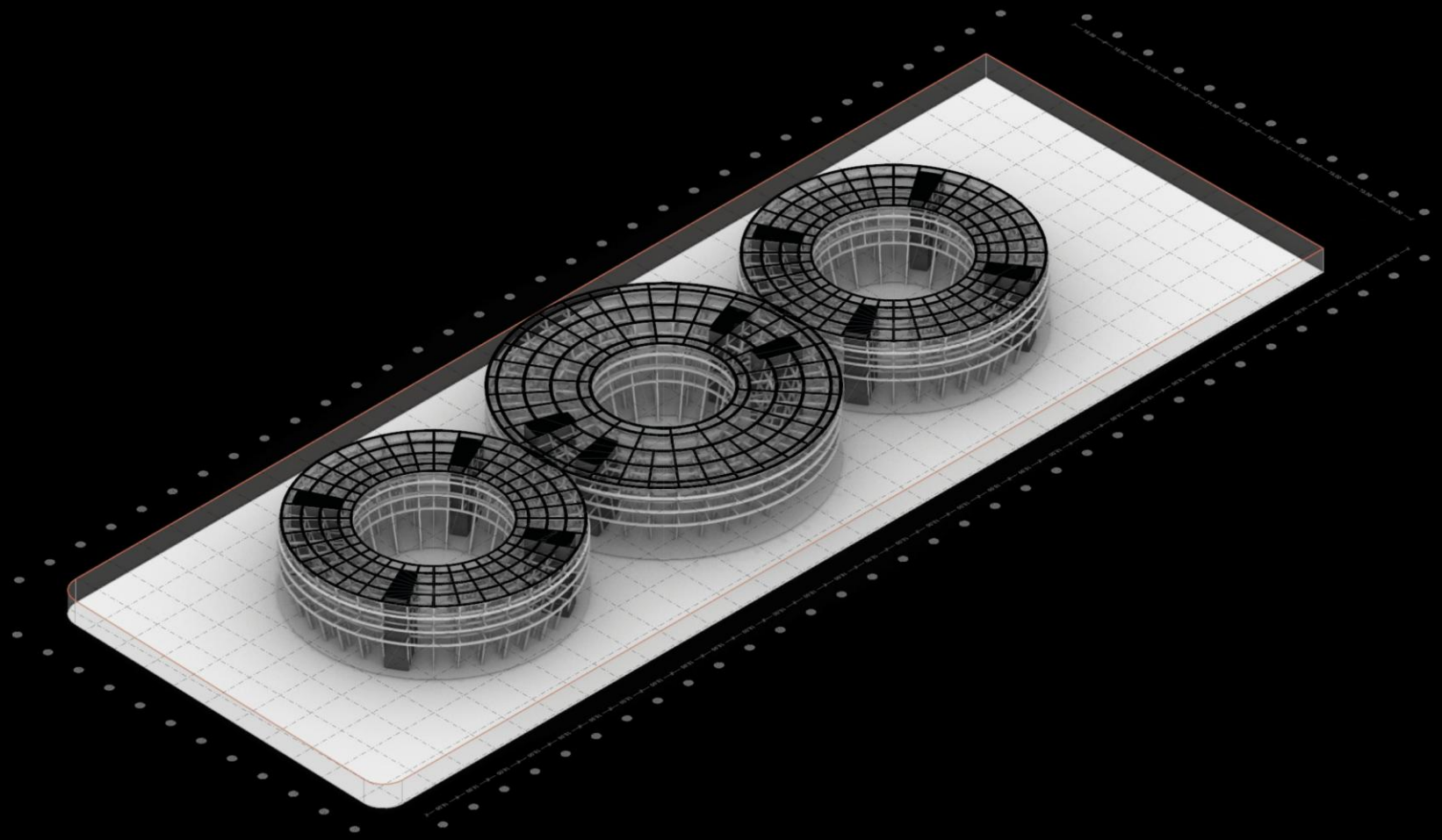
implementation

SLANTED COLUMNS



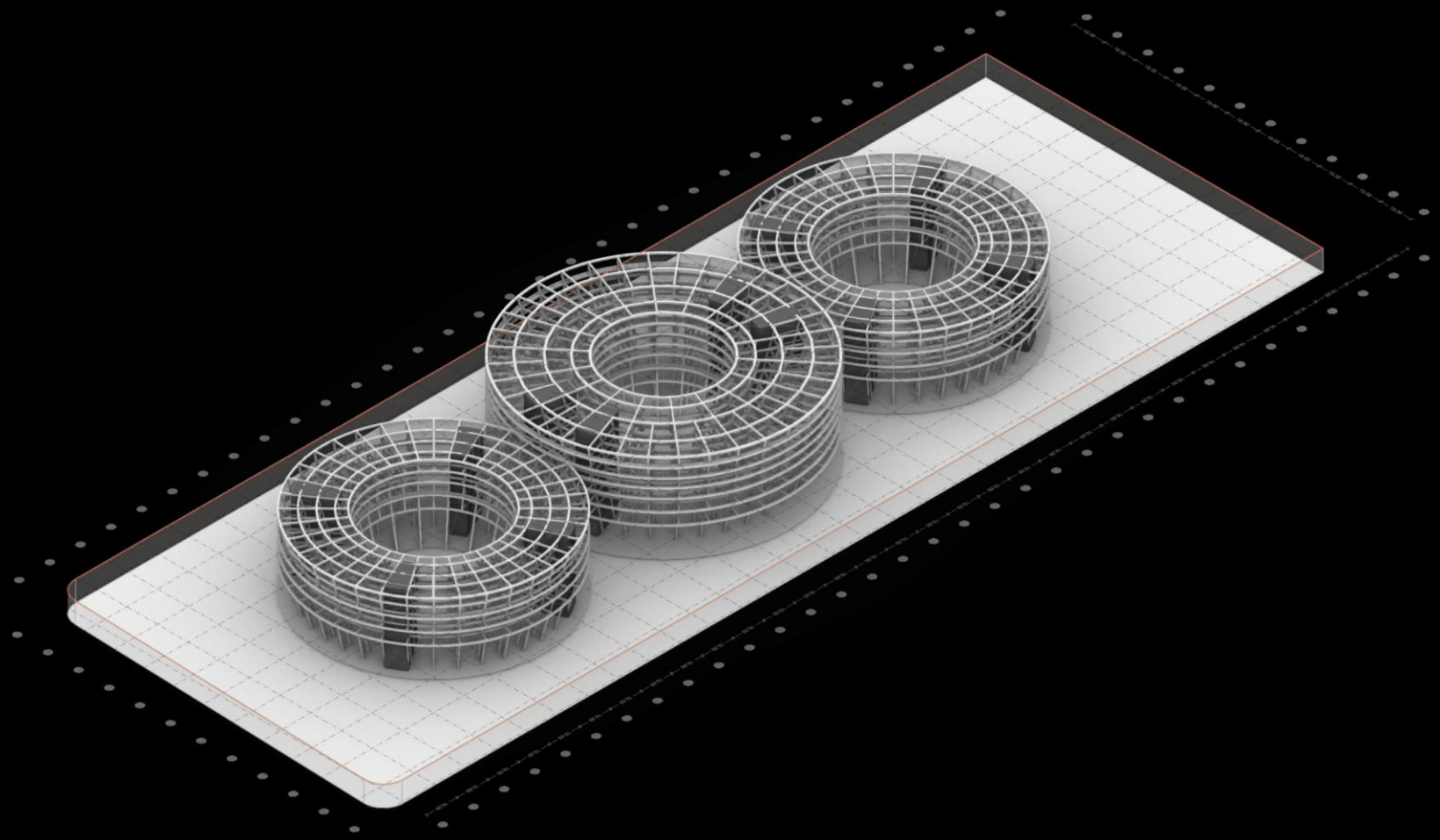
implementation

BEAMS

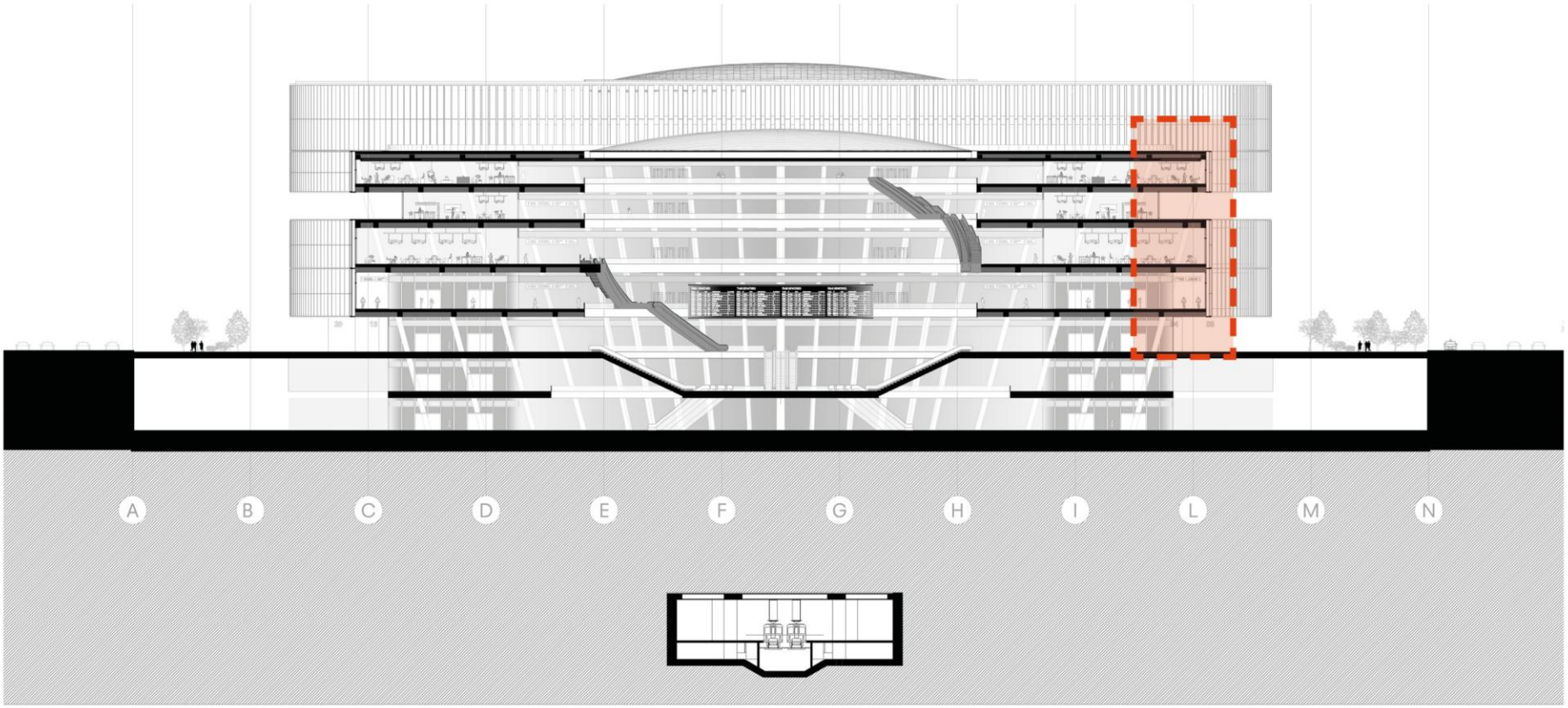


implementation

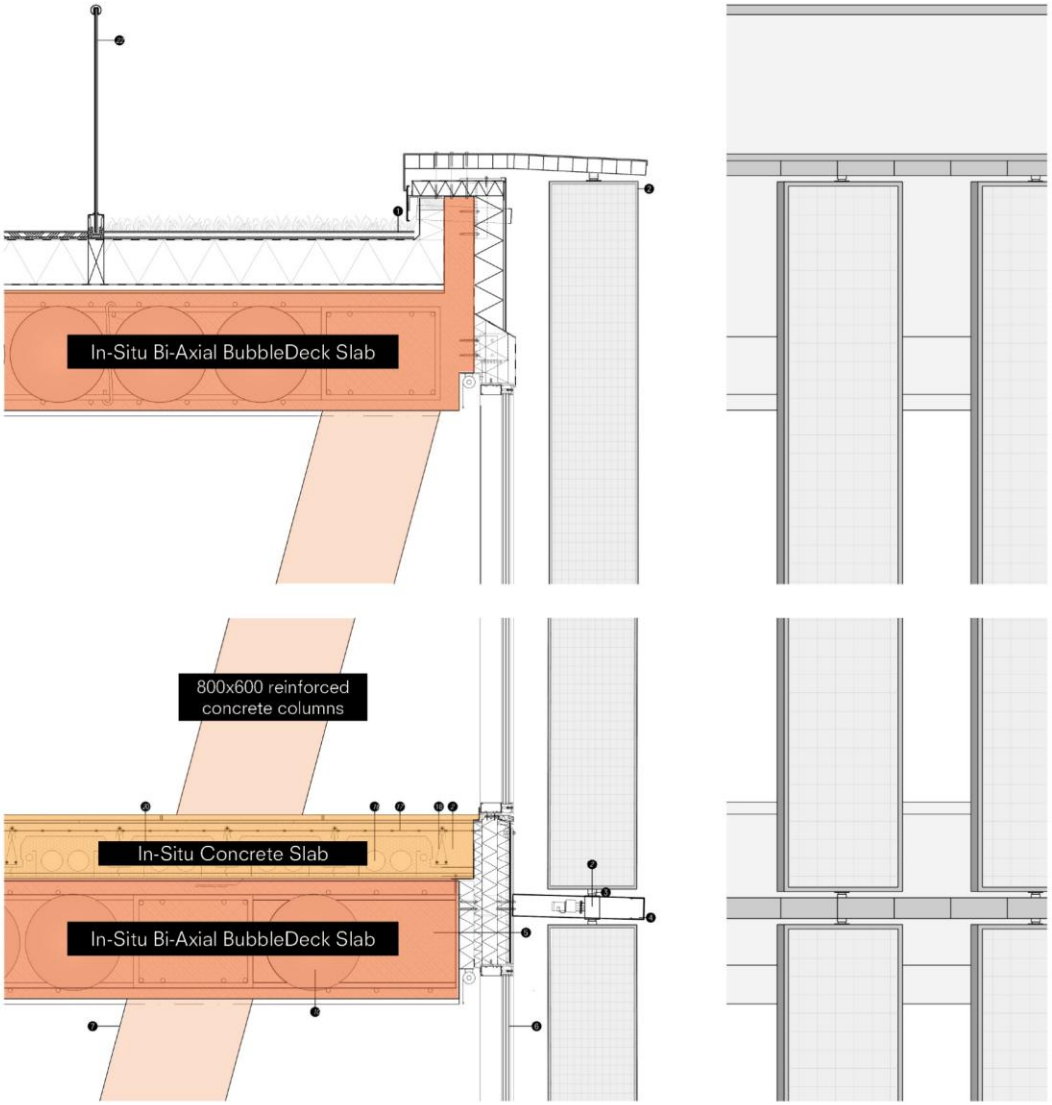
STRUCTURE



SECTION CC'



FRAGMENT


In-Situ Bi-Axial BubbleDeck Slab
800x600 reinforced concrete columns
In-Situ Concrete Slab
In-Situ Bi-Axial BubbleDeck Slab

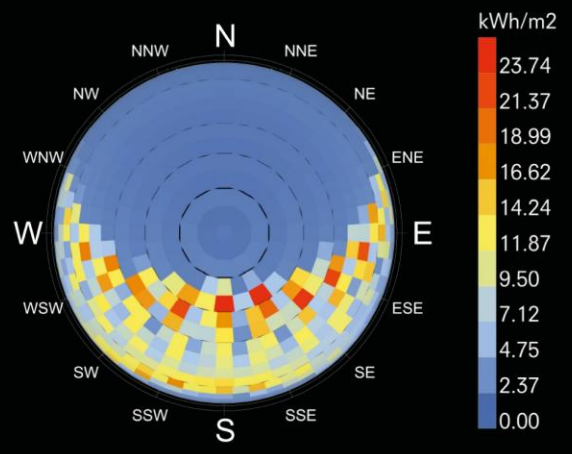
structure

facade

climate

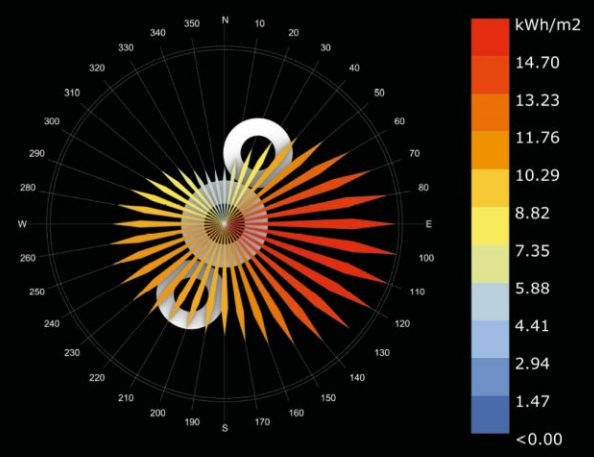
ANNUAL RADIATION

Total Radiation



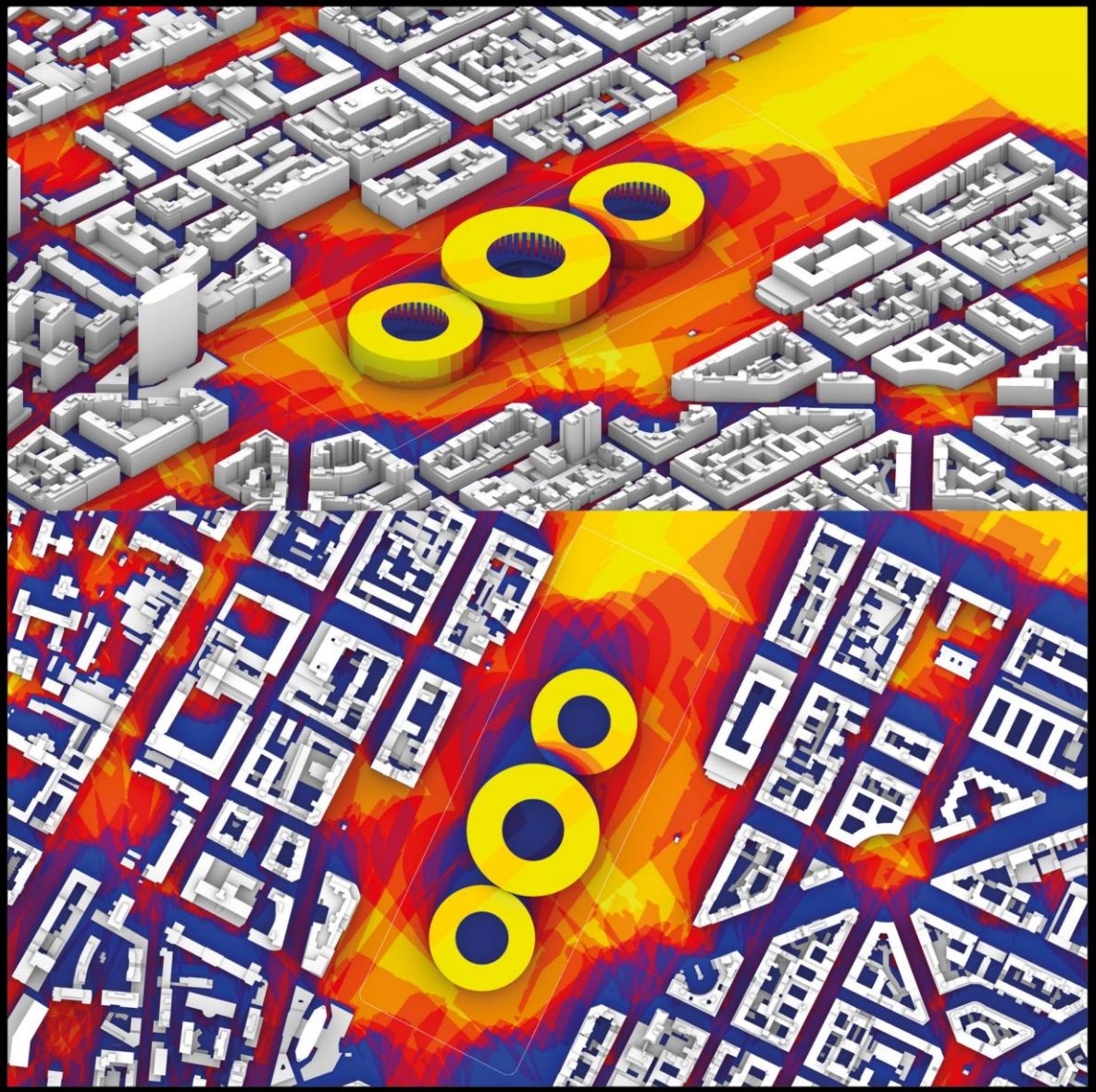
01 Jan 00:00 - 31 Dec 23:00
city : Milano-Linate.AP
country : ITA
time-zone : 1.0
source : SRC-TMYx

Total Radiation

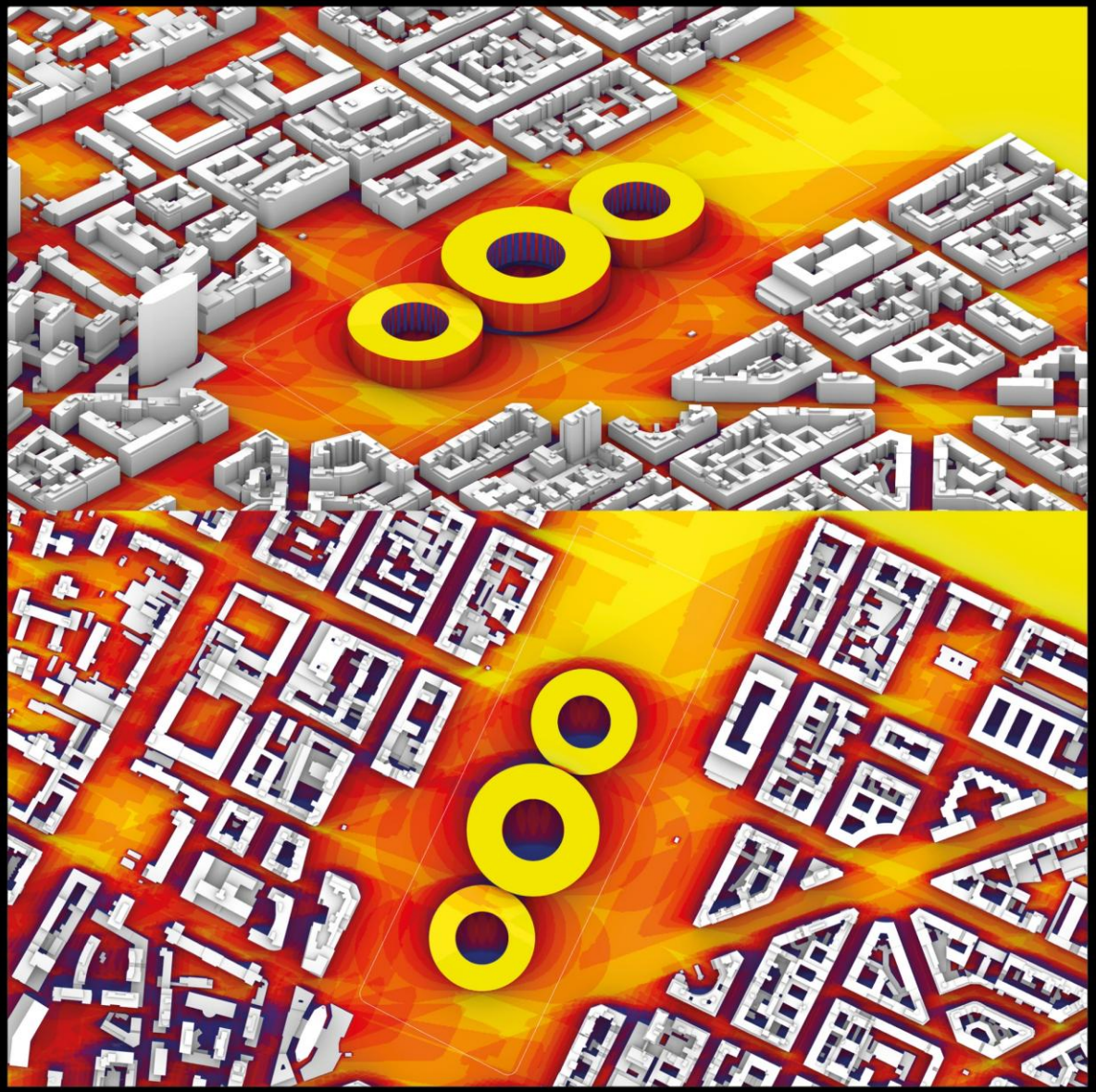


Total Radiation(kWh/m2)
Milano_Linate_AP_LM_ITA_2013
1 JUN 1:00 - 4 JUN 24:00

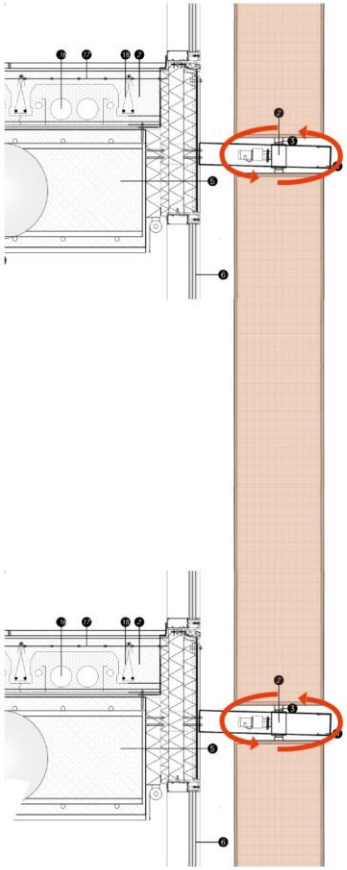
SUMMER RADIATION

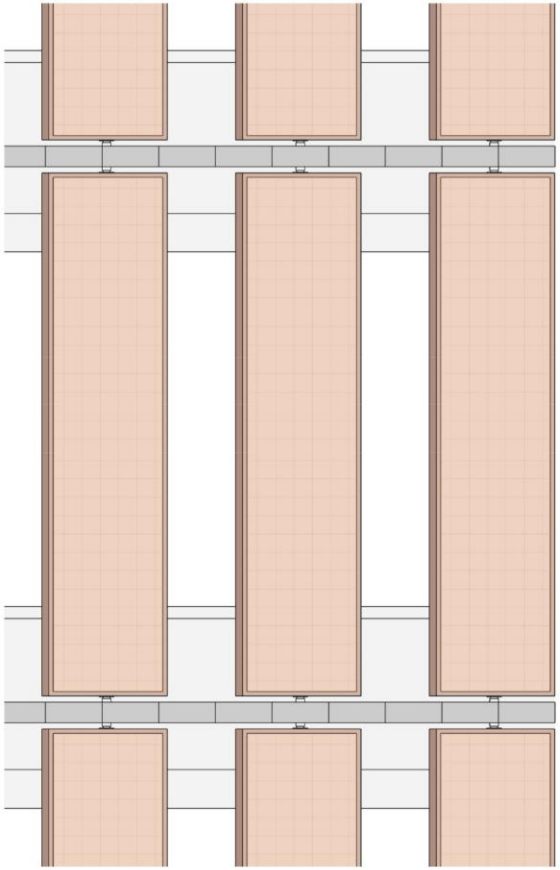


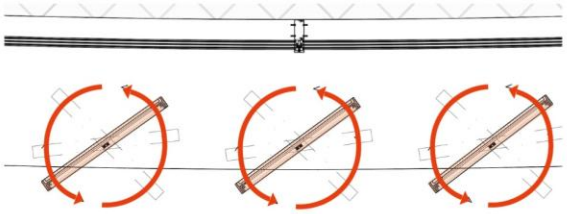
WINTER RADIATION



FACADE FRAGMENT

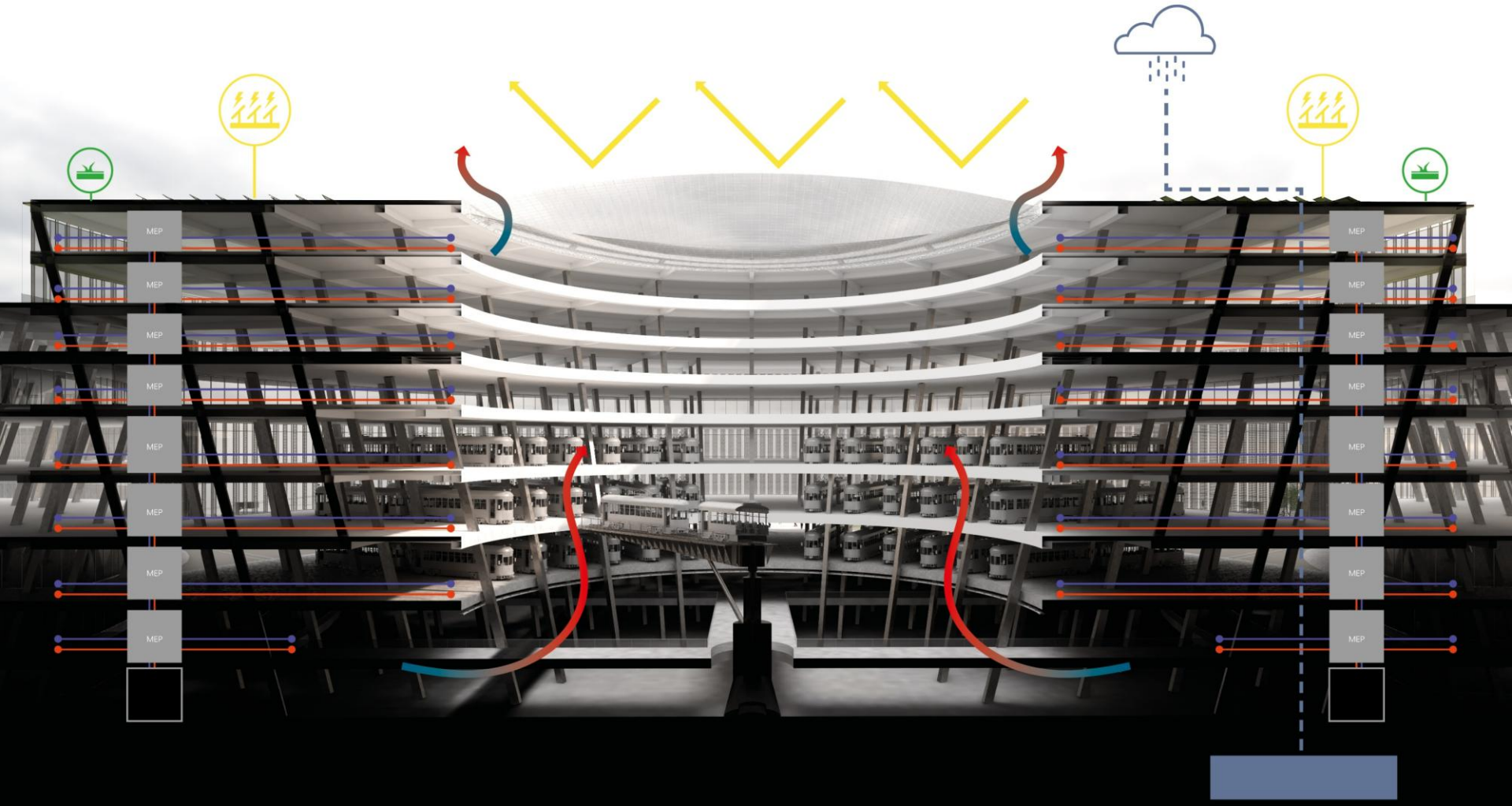






ROTATING LOUVERS

CLIMATE STRATEGIES



INDIRECT DAYLIGHT
The use of indirect daylight reduces glare and heat

CROSS VENTILATION
Cross-ventilation allows fresh outside air to circulate, reducing the need for mechanical ventilation

GEOTHERMAL WATER
Utilizing renewable geothermal energy for heating and cooling systems

RENEWABLE ENERGIES
With PV panels the building can reduce greenhouse gas emissions

RAIN WATER
Storing rainwater for non-potable uses helping water conservation

RESEARCH QUESTION

How can a train station be transformed into
to a flexible, responsive, and scalable hub
that addresses the evolving cultural demands of Milan?

ON THE METRO

ON THE TRAIN

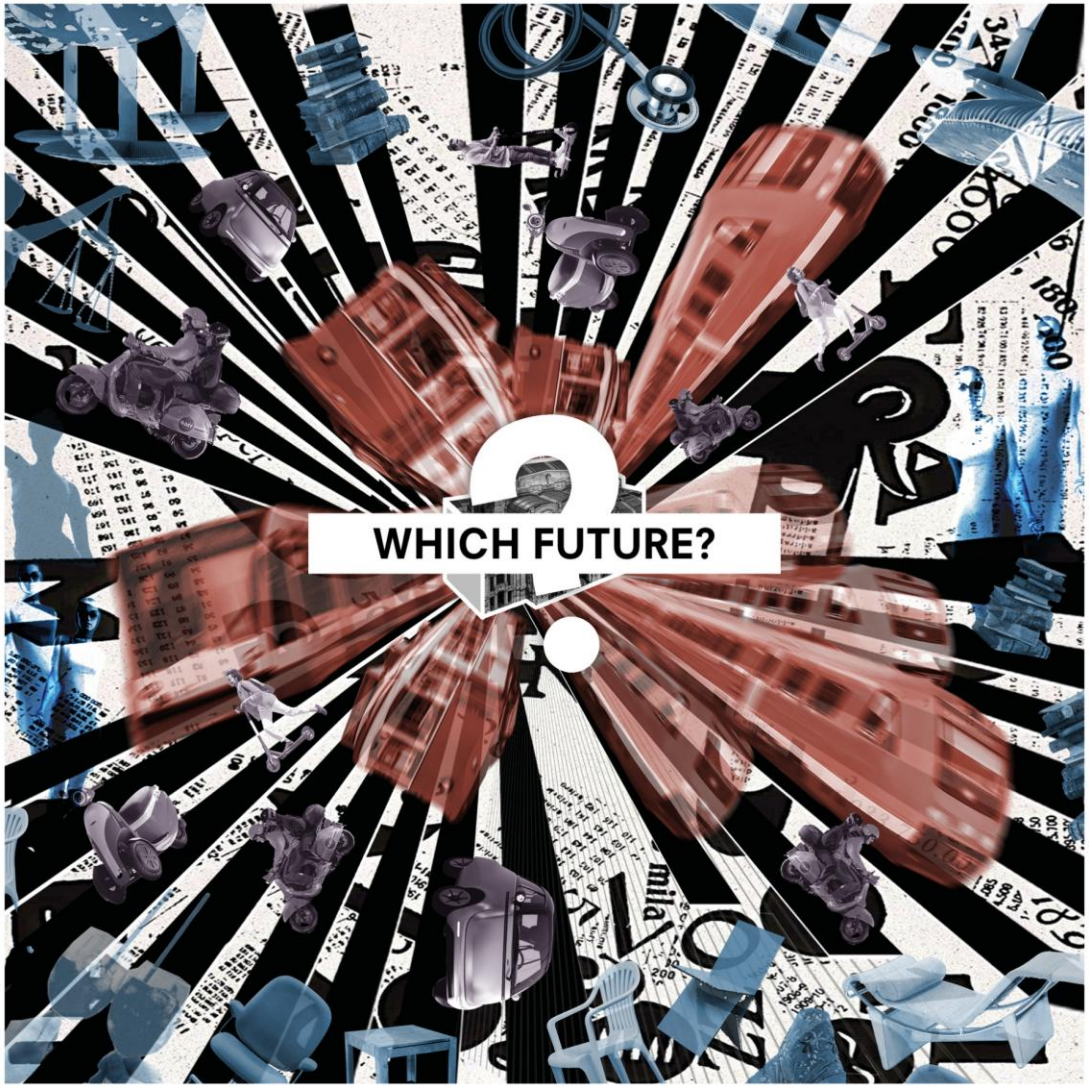
ON THE TRAM

ON THE BUS

IN THE PAST...

BUT ALSO IN THE PRESENT

AMBITION VISION



ON THE MOVE

ON THE MOVE

BICYCLE RAMP

VEHICLE AS A LIVING SPACE

CULTURE AS PART OF THE JOURNEY

DESIGNING THE FUTURE OF MOBILITY

DESIGNING THE FUTURE OF MOBILITY

DESIGNING THE FUTURE OF MOBILITY