

EUROTERMINAL BERLIN

A high-speed trainstation driven by the future

Pim Smit

7 July 2023

Introduction

MEET DAVE



NAME: DAVE
AGE: 31
JOB: TECHNOLOGY CONSULTANT
RELATION STATUS: SINGLE
CITY: ROTTERDAM

Introduction

DAVE TRAVELS A LOT



Introduction

DAVE TRAVELS A LOT

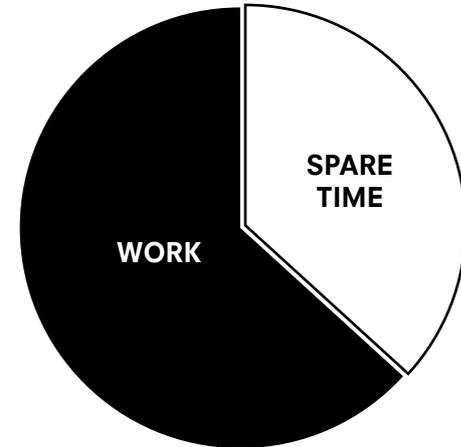


Introduction

DAVE TRAVELS A LOT

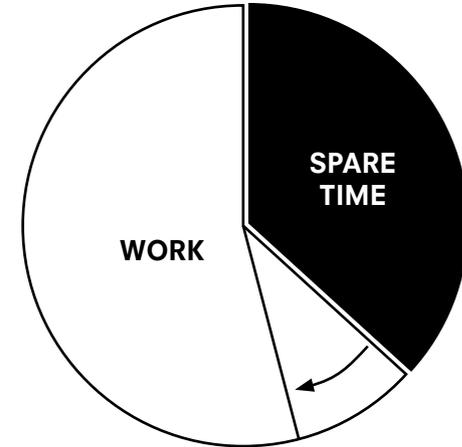


DAVE LOVES HIS SPARE TIME



DAVE LOVES HIS SPARE TIME

I need technology to be more efficient.



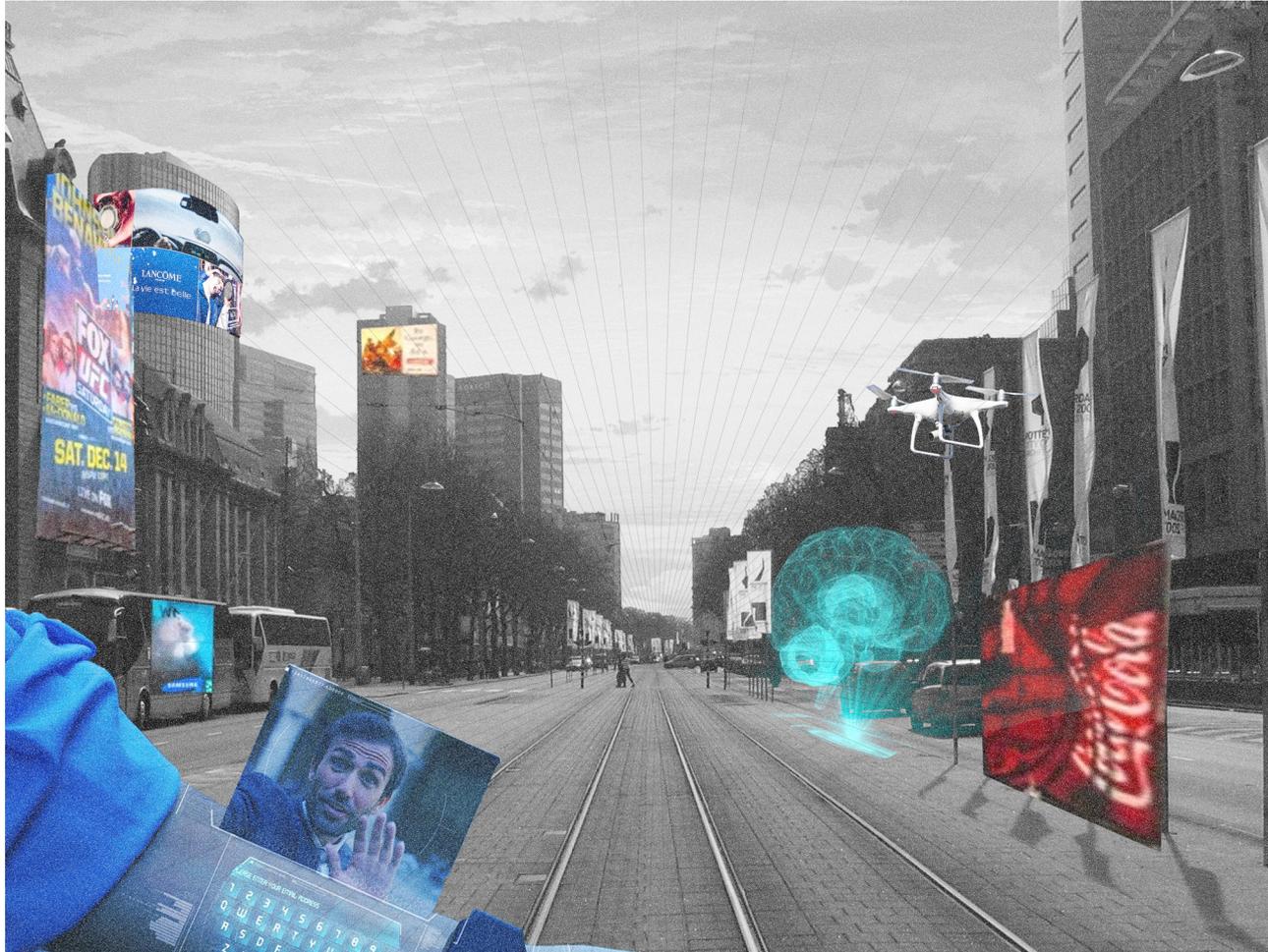
Introduction

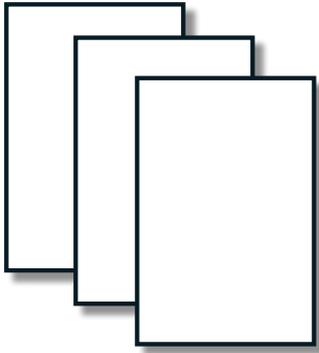
DAVE LOVES HIS SPARE TIME



ROTTERDAM
2050

A CITY FLOODED BY TECHNOLOGY



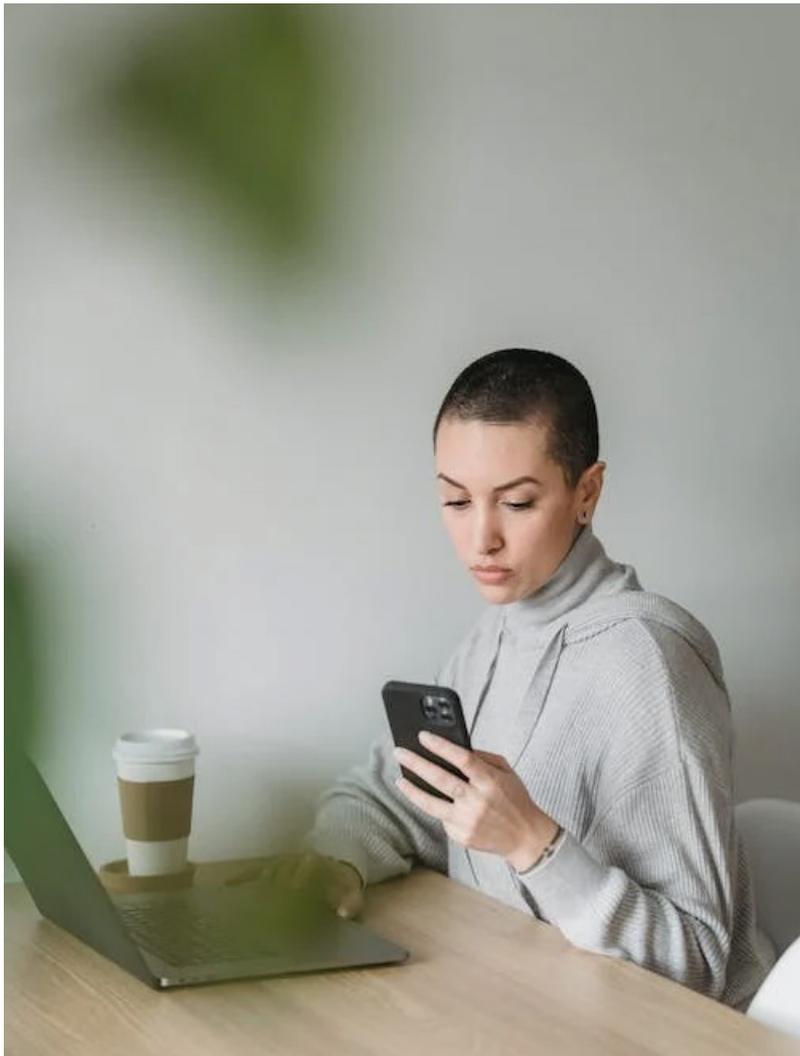


Physical



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1111111110000100  
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Digital









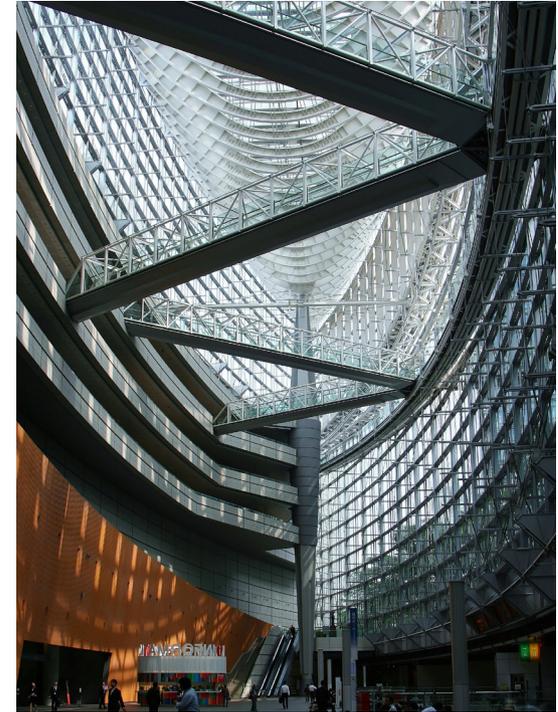
ACCELERATION OF GLOBAL SOCIETY



Denser cities



More efficient transport



Complexer buildings

THE CITY ON STEROIDS



Introduction

TRAVELTIME



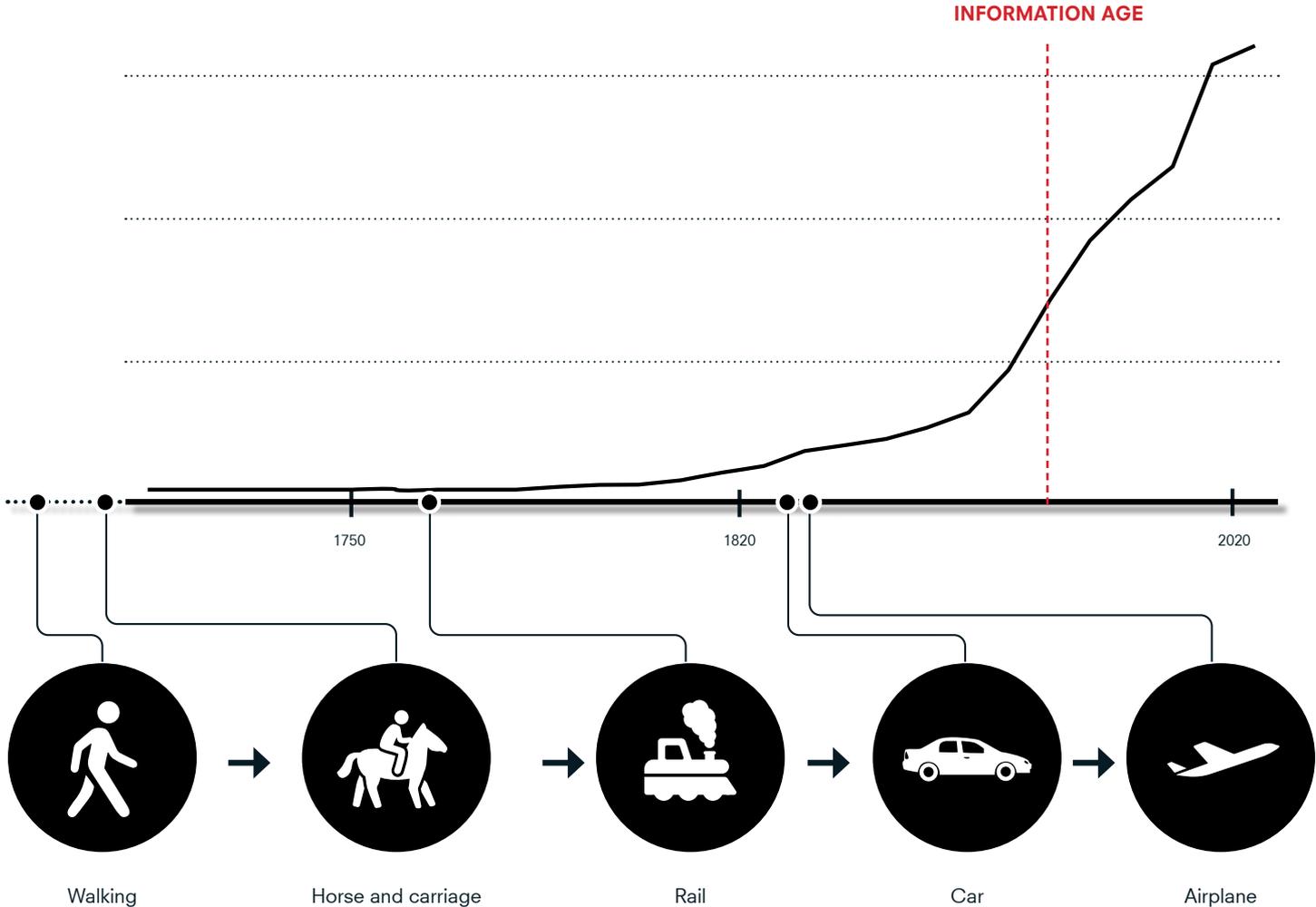
Introduction

PLANE IS NOT AN OPTION



Introduction

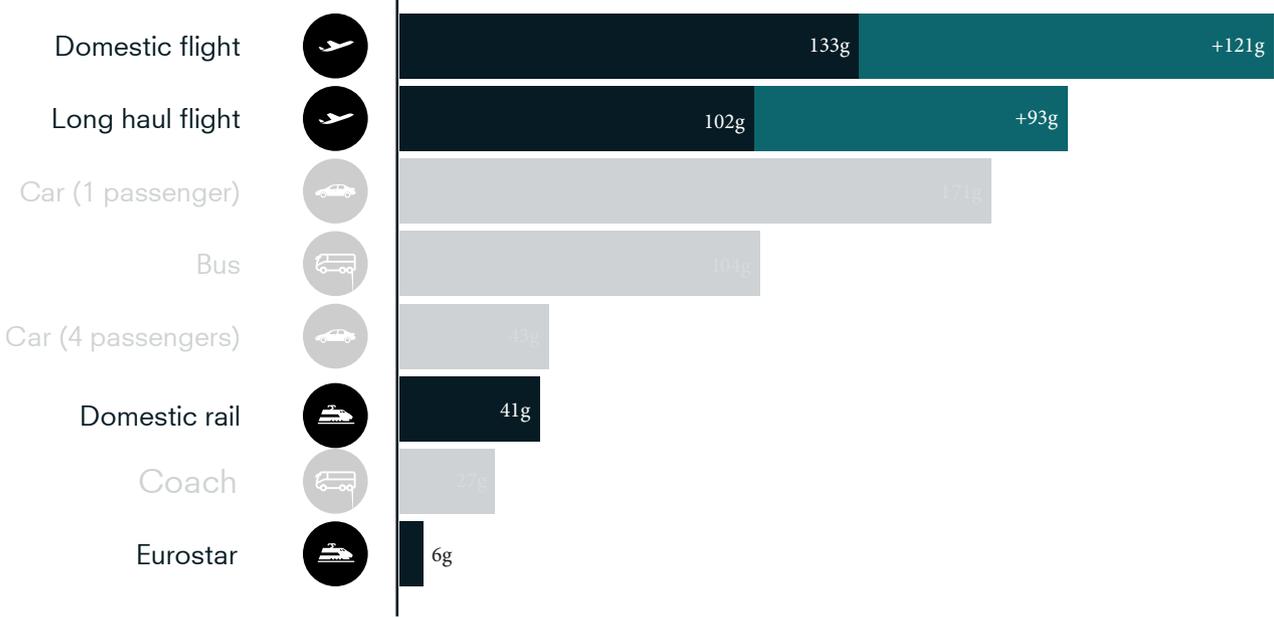
INCREASE IN CO² EMISSIONS



Source: Statista 2023. Global Carbon Project 1750 - 2020

Introduction

AVIATION VS. RAILWAY



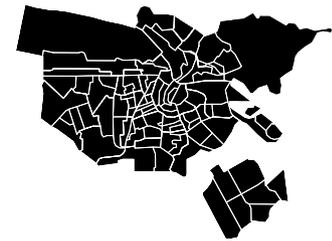
CO₂ emissions Secondary effects from high altitude, non-CO₂ emissions

Source: BEIS/Defra Greenhouse Gas Conversion Factors 2019

COMMUTE BY TRAIN



ROTTERDAM



AMSTERDAM



COMMUTE BY TRAIN



ROTTERDAM



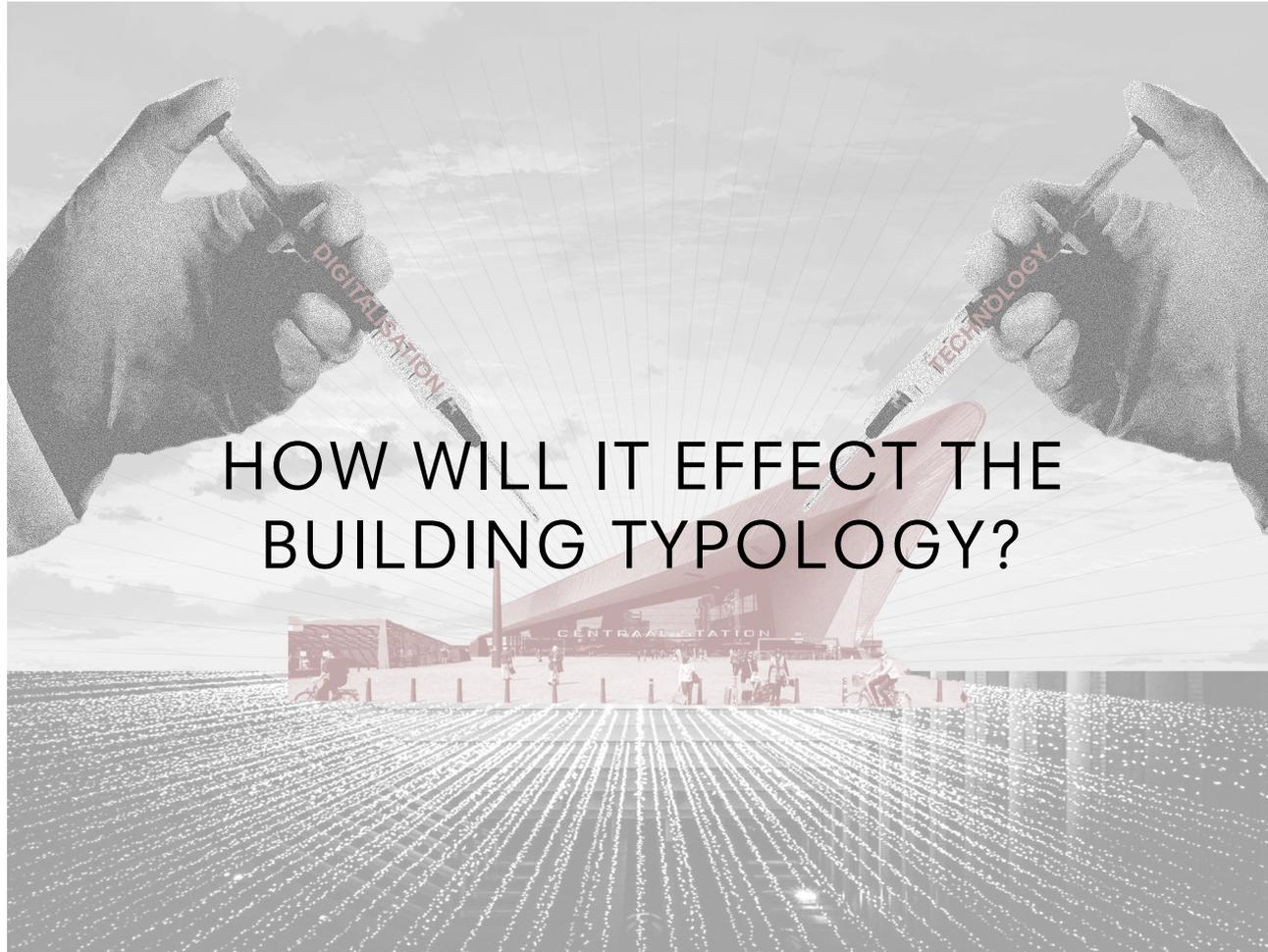
BERLIN



WHAT IF RAIL TRAVEL GETS A BOOST?



WHAT IF RAIL TRAVEL GETS A BOOST?



HOW WILL IT EFFECT THE
BUILDING TYPOLOGY?

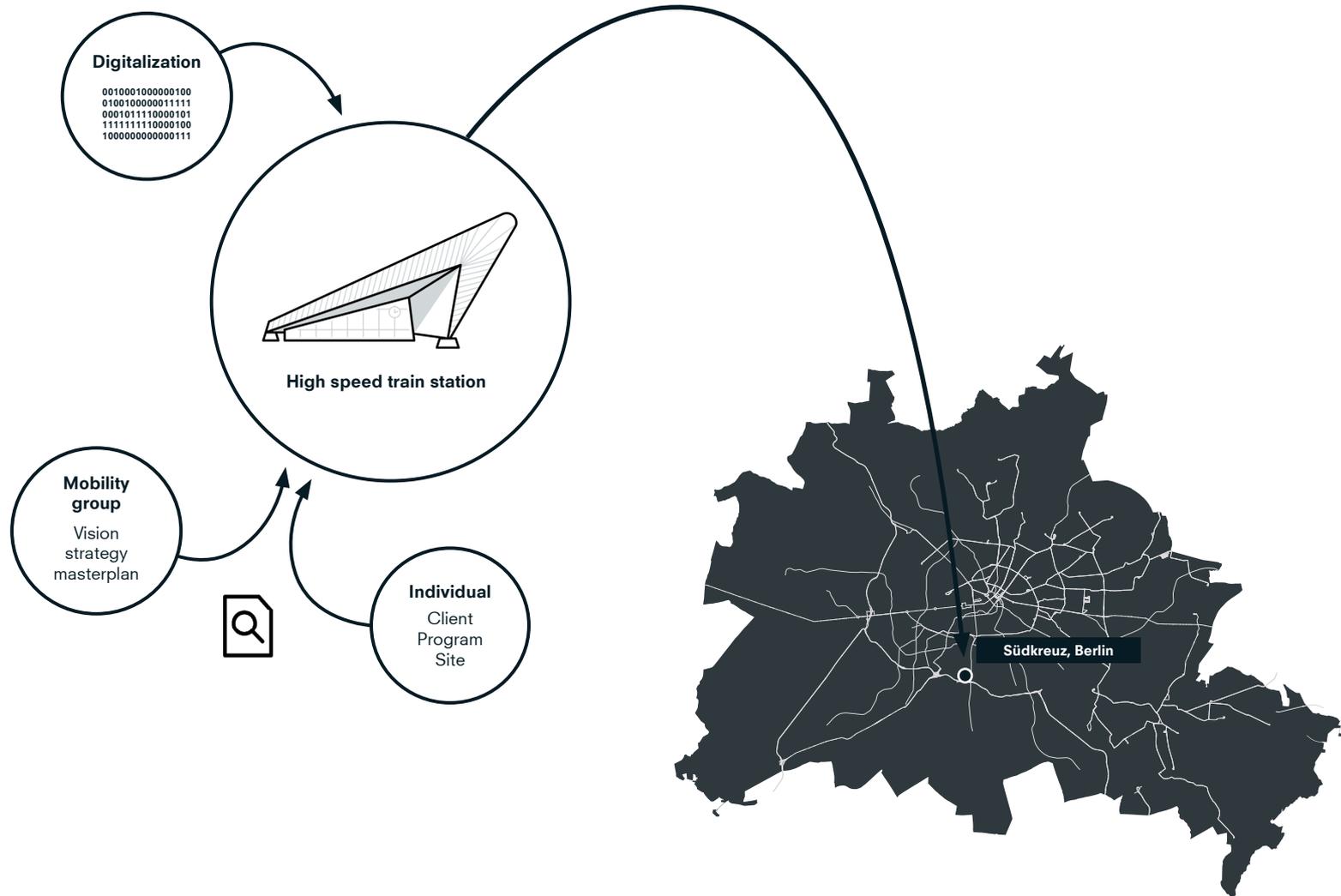


How will technological innovation and digitalization in high-speed transportation affect the building typology of a train station, and consequently its users?

Research Question

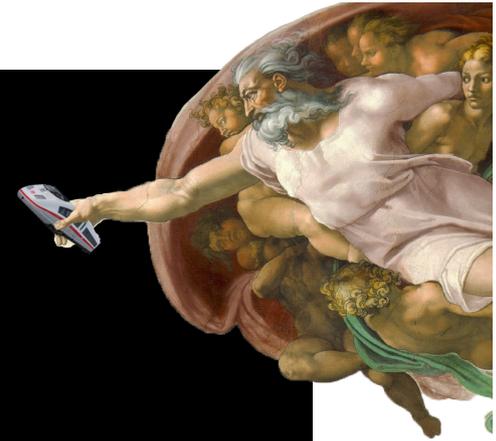
Introduction

DESIGN ASSIGNMENT



CHAPTER 1

RAIL RENAISSANCE



Client

FUTURE MEGATRENDS



MEGACITIES

By 2050, around 75% of the world's population will live in cities. It is estimated that the global urban population is growing at two people per second, adding 172,800 new city-dwellers each day.



DEMOGRAPHIC CHANGE

Demographic and socio-economic shifts will result in a new global order.



CLIMATE CHANGE

Emissions of greenhouse gases worldwide will have to be cut by 50% by 2050.



SMART AND INTEGRATED MOBILITY

Smart solutions need to be implemented to provide adequate transport capacity for growing volumes of goods and people.



TECHNOLOGY

The growing pace of technological change will be one of the major drivers of change for the transport sector.



ENERGY AND RESOURCES

Global consumption of resources will nearly triple to 140 billion tons per year by 2050, if economic progression and consumption continue on their trajectories.

Client

MEANWHILE IN BRUSSELS

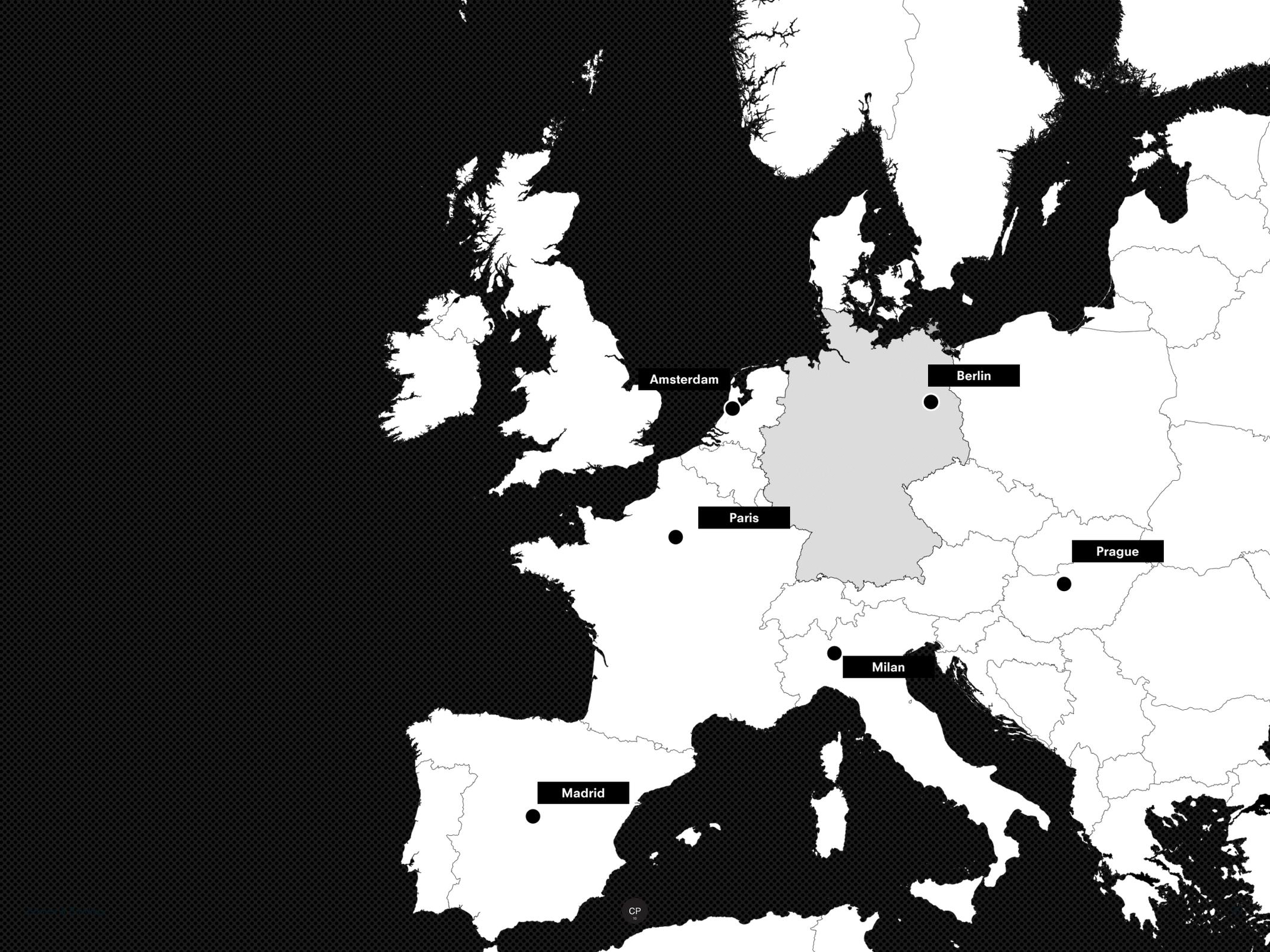


MEANWHILE IN BRUSSELS



To do list:

- Climate neutrality by 2050
- Invest in research and innovation
- Maintain a healthy planet and improve the wellbeing of citizens
- Ensure that the EU economy remains globally competitive and for everyone
- Transition to zero-emission mobility



Amsterdam

Berlin

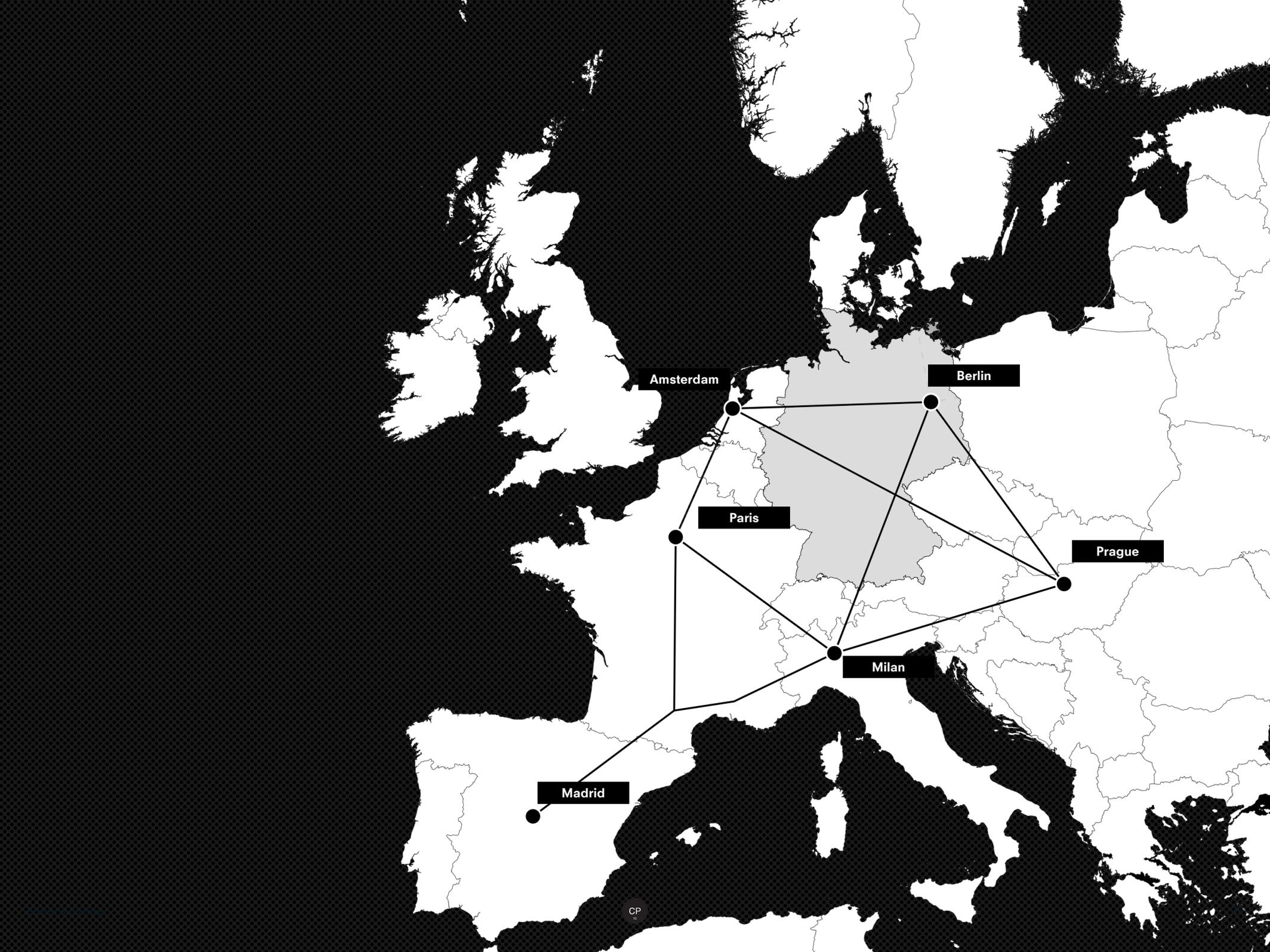
Paris

Prague

Milan

Madrid

CP



Amsterdam

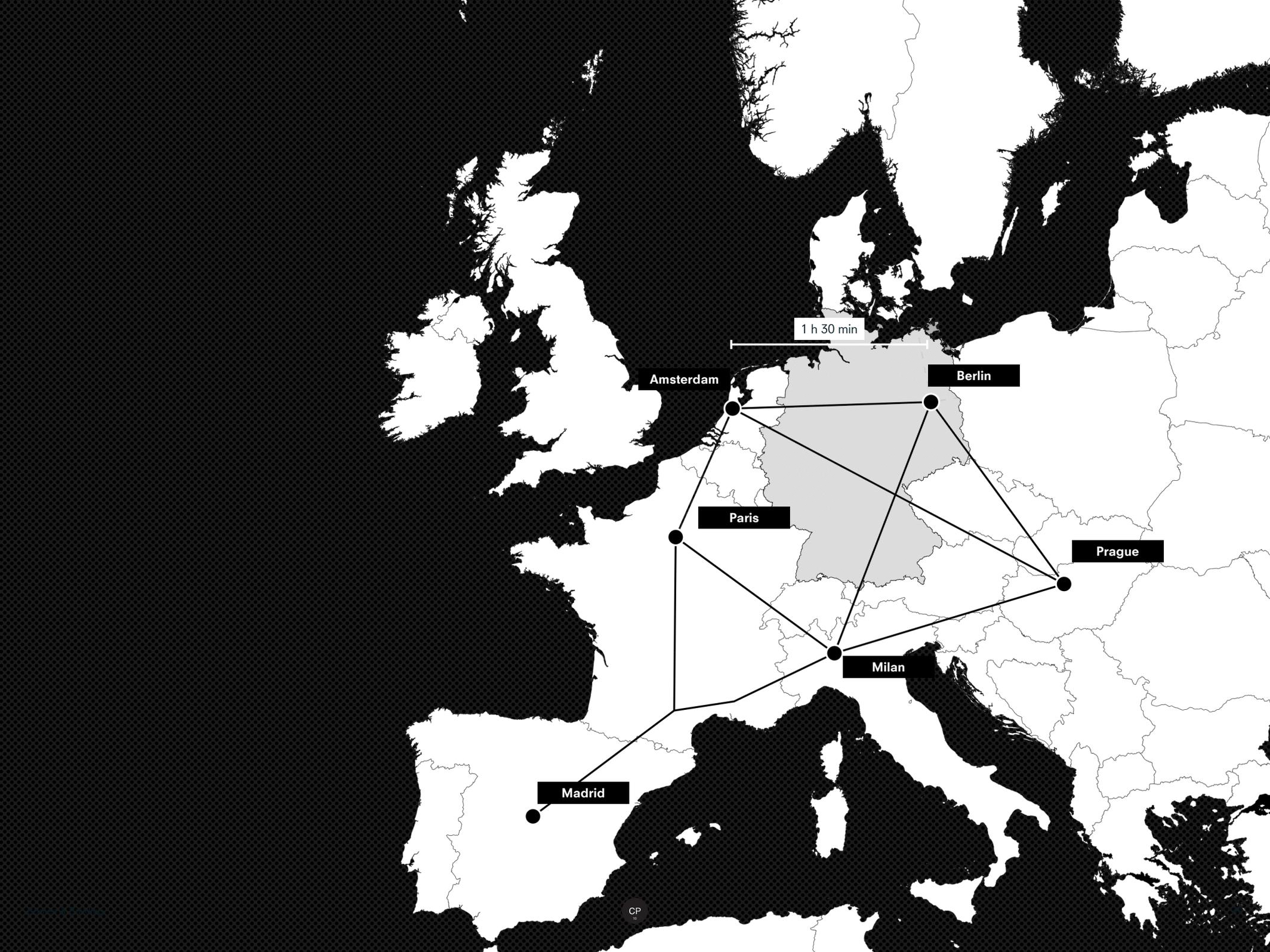
Berlin

Paris

Prague

Milan

Madrid



1 h 30 min

Amsterdam

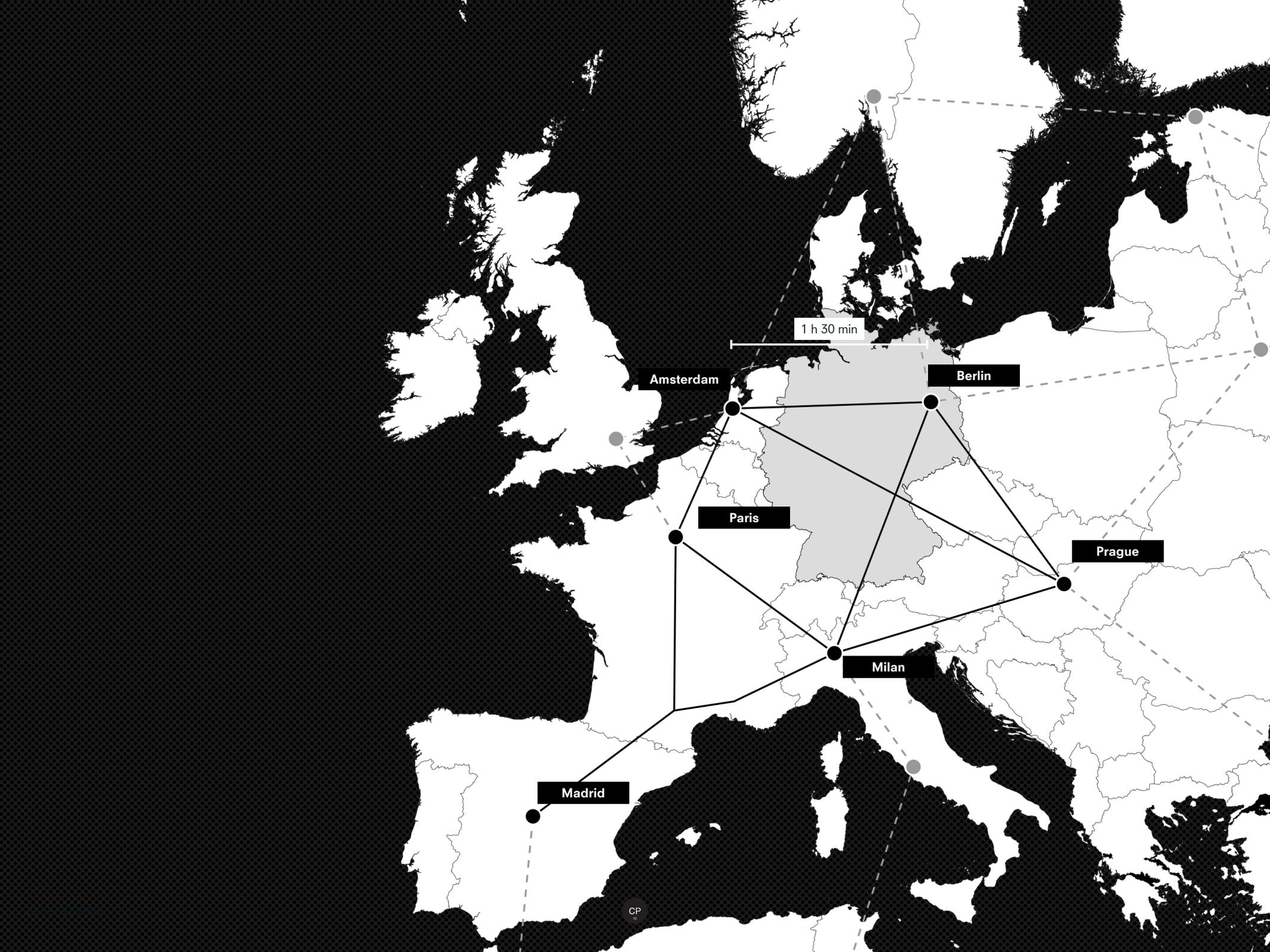
Berlin

Paris

Prague

Milan

Madrid



1 h 30 min

Amsterdam

Berlin

Paris

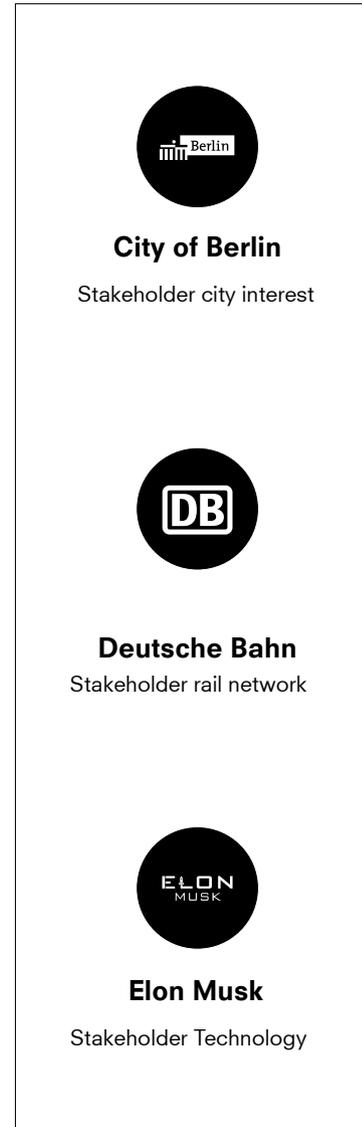
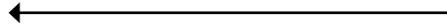
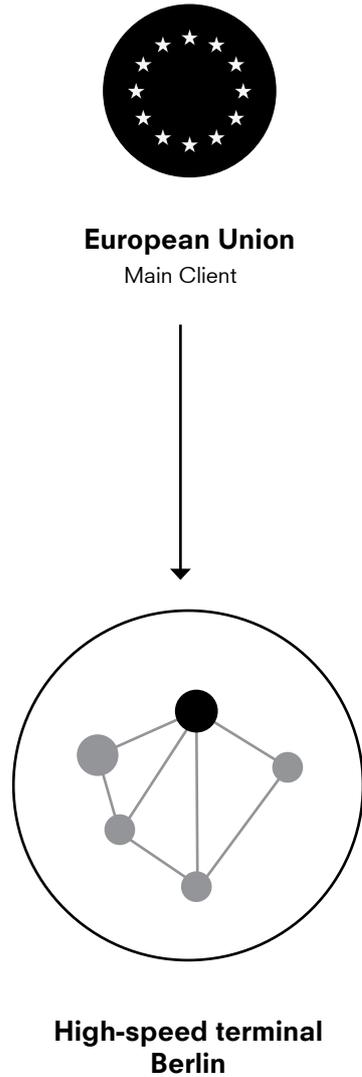
Prague

Milan

Madrid

CP

Client STAKEHOLDERS





**HIGH-SPEED
TRAINSTATION**



MULTIMODAL
TERMINAL



**TECHNOLOGY
TEST LAB**



**CONVENIENT
TO USERS**



EASY TO NAVIGATE

Client

PIONEER EUROSTATION

Digitalization

0010001000000100
0100100000011111
0001011110000101
111111110000100
1000000000000111

Data - driven

Close monitoring of railnetwork and trains by sensors and cameras to enhance safety and efficiency.

New technologies

Push for integration of new futureproof technologies.

User Confinience

Adoption of new technologies to deliver a service tailored to the user.



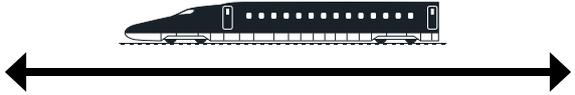
THE BULLET TRAIN

Client

HIGH-SPEED RAIL NETWORK



ROTTERDAM



BULLET TRAIN



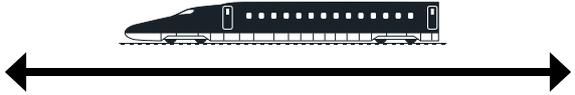
BERLIN

Client

HIGH-SPEED RAIL NETWORK



ROTTERDAM



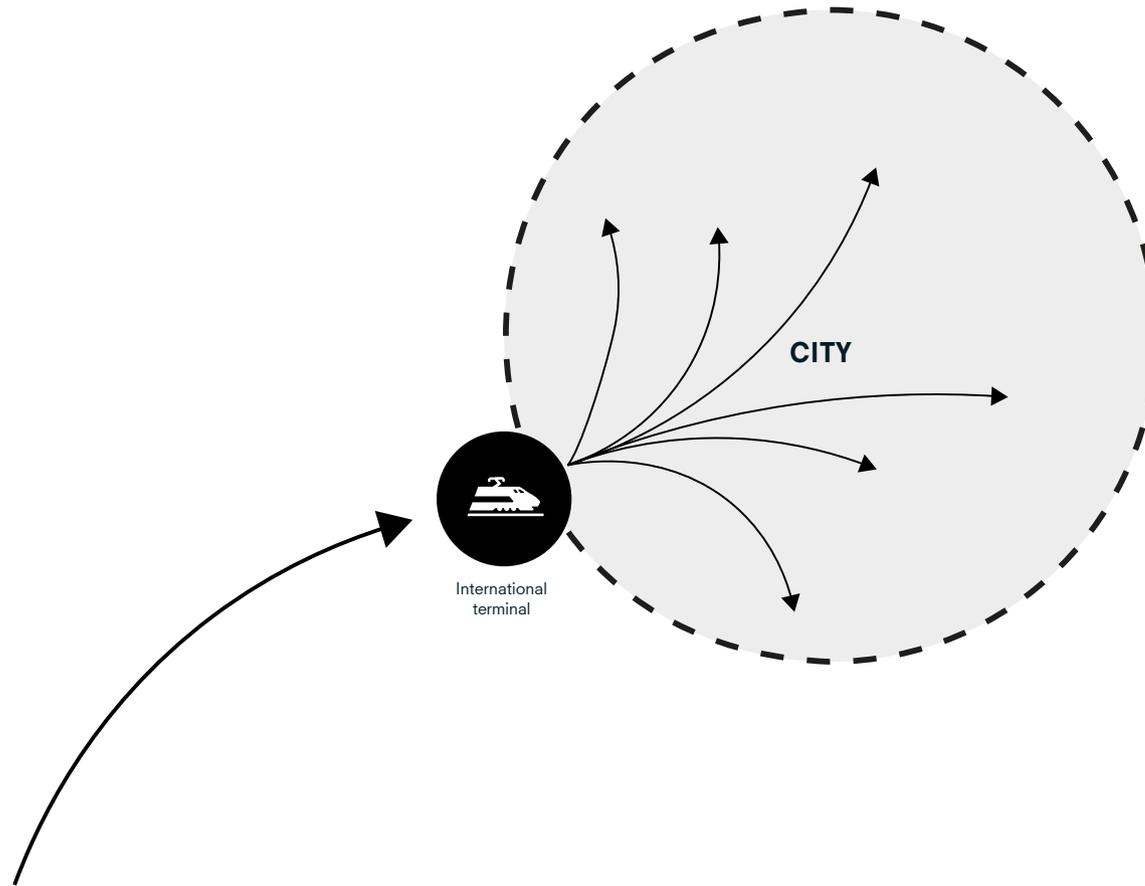
400 KM/H



BERLIN

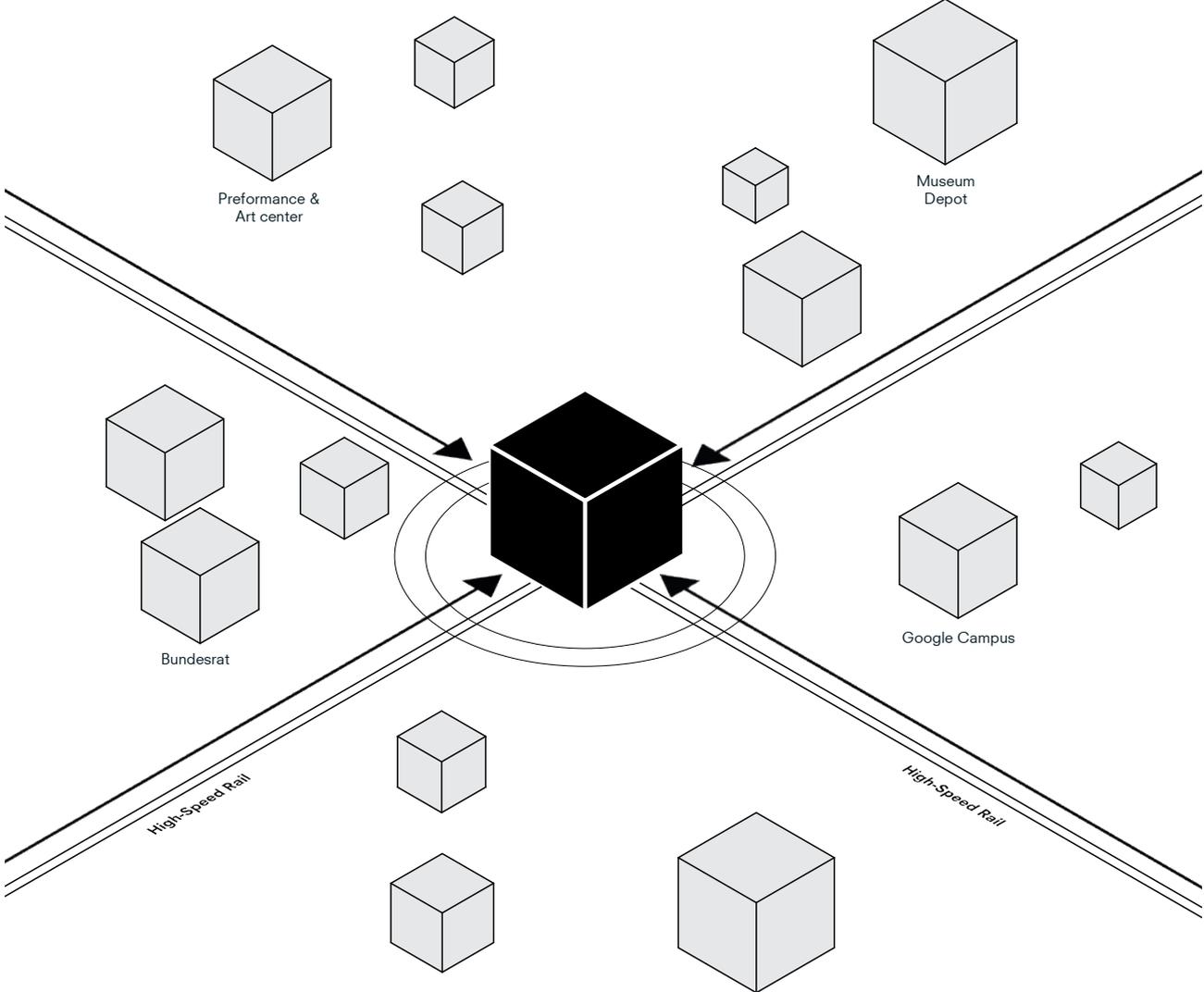
Client

INTERNATIONAL TERMINAL



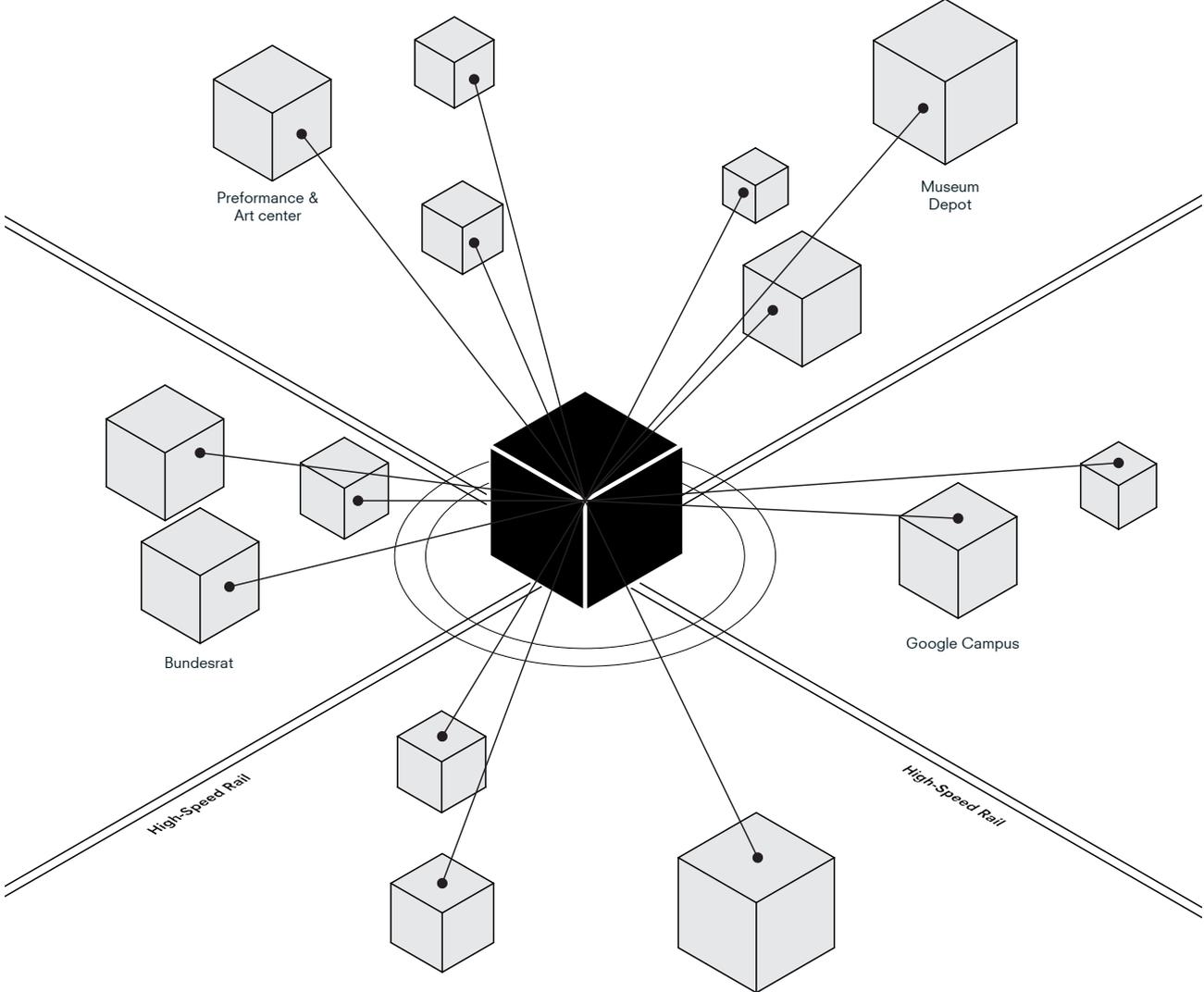
Client

INTERNATIONAL TERMINAL



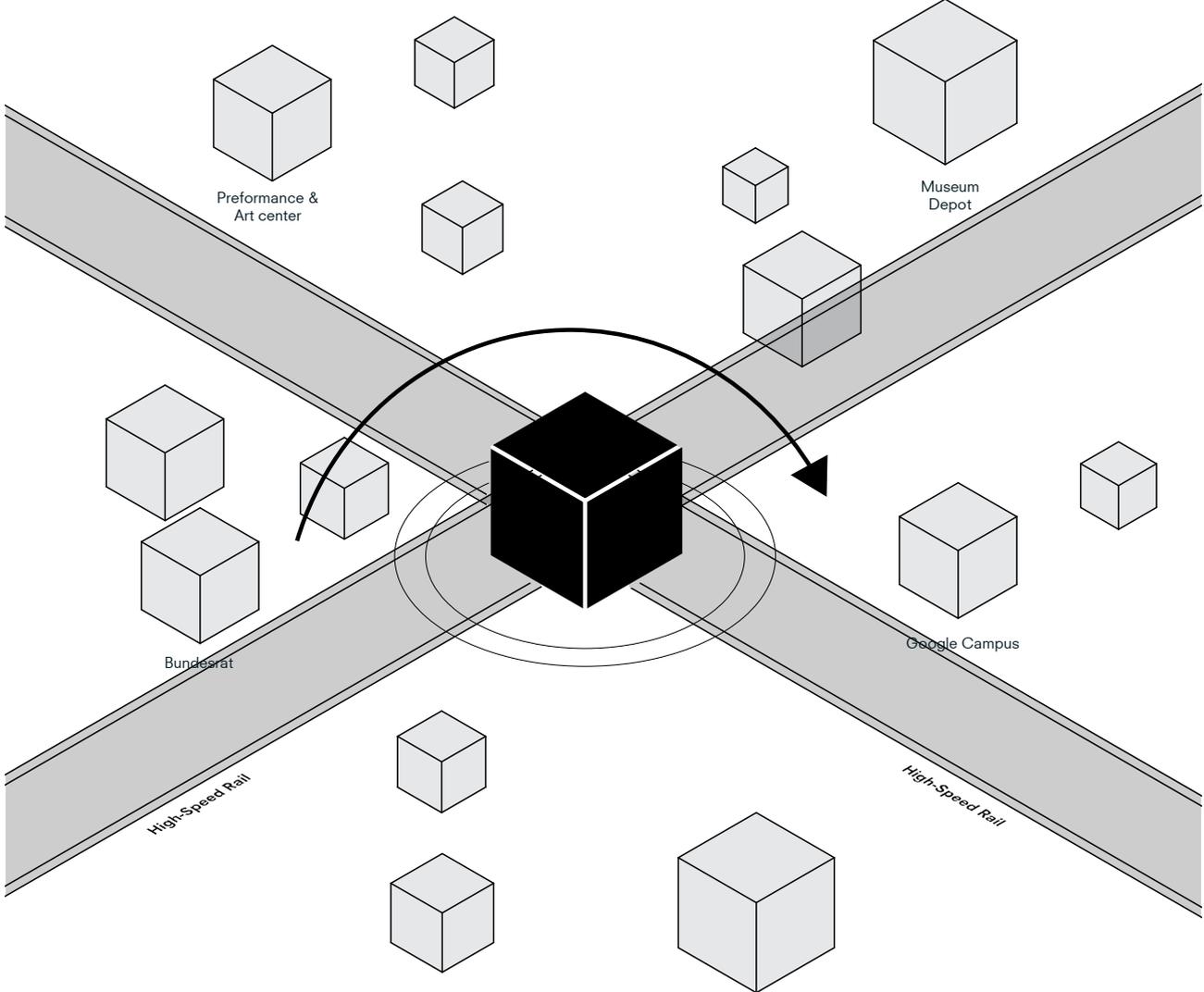
Client

INTERNATIONAL TERMINAL



Client

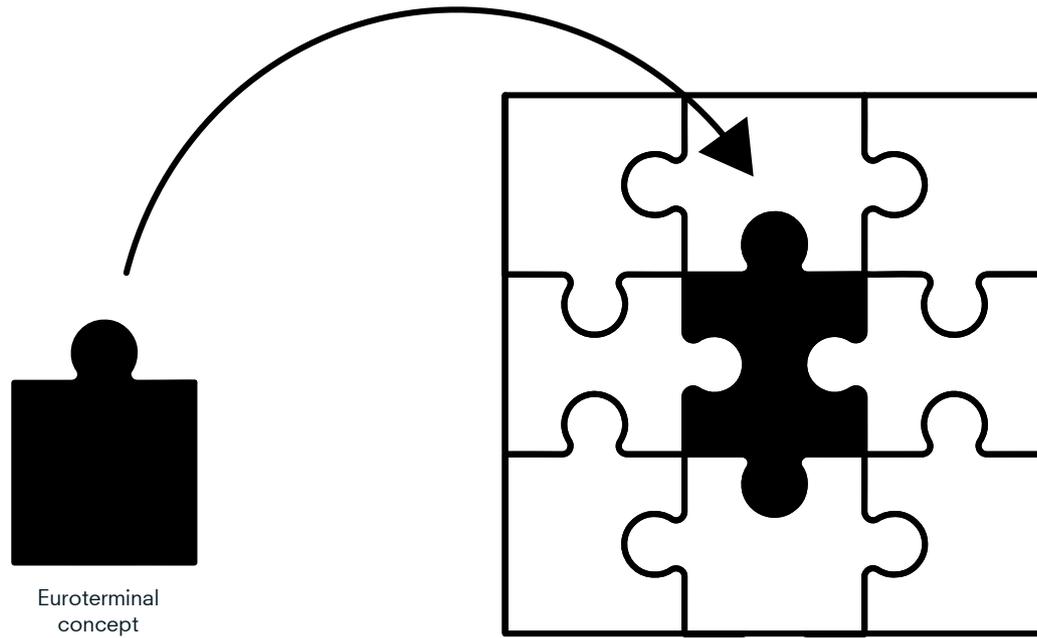
INTERNATIONAL TERMINAL





**INTERNATIONAL
&
CONTEXTUAL**

Client
MAKE IT FIT



Conclusion

WHICH DOOR TO CHOOSE?



CHAPTER 2
BRANDENBURGER
TOR 2.0



BERLIN

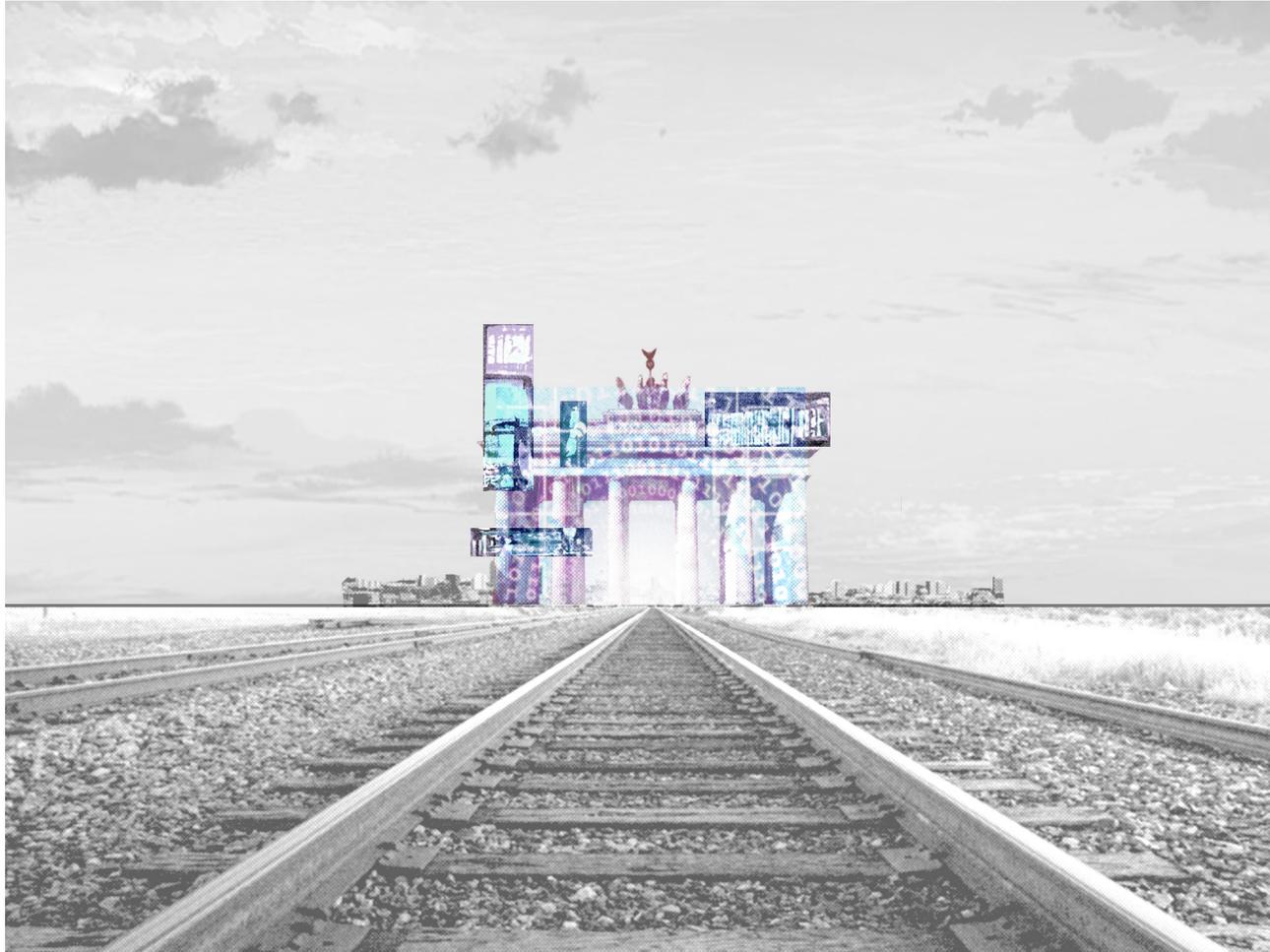
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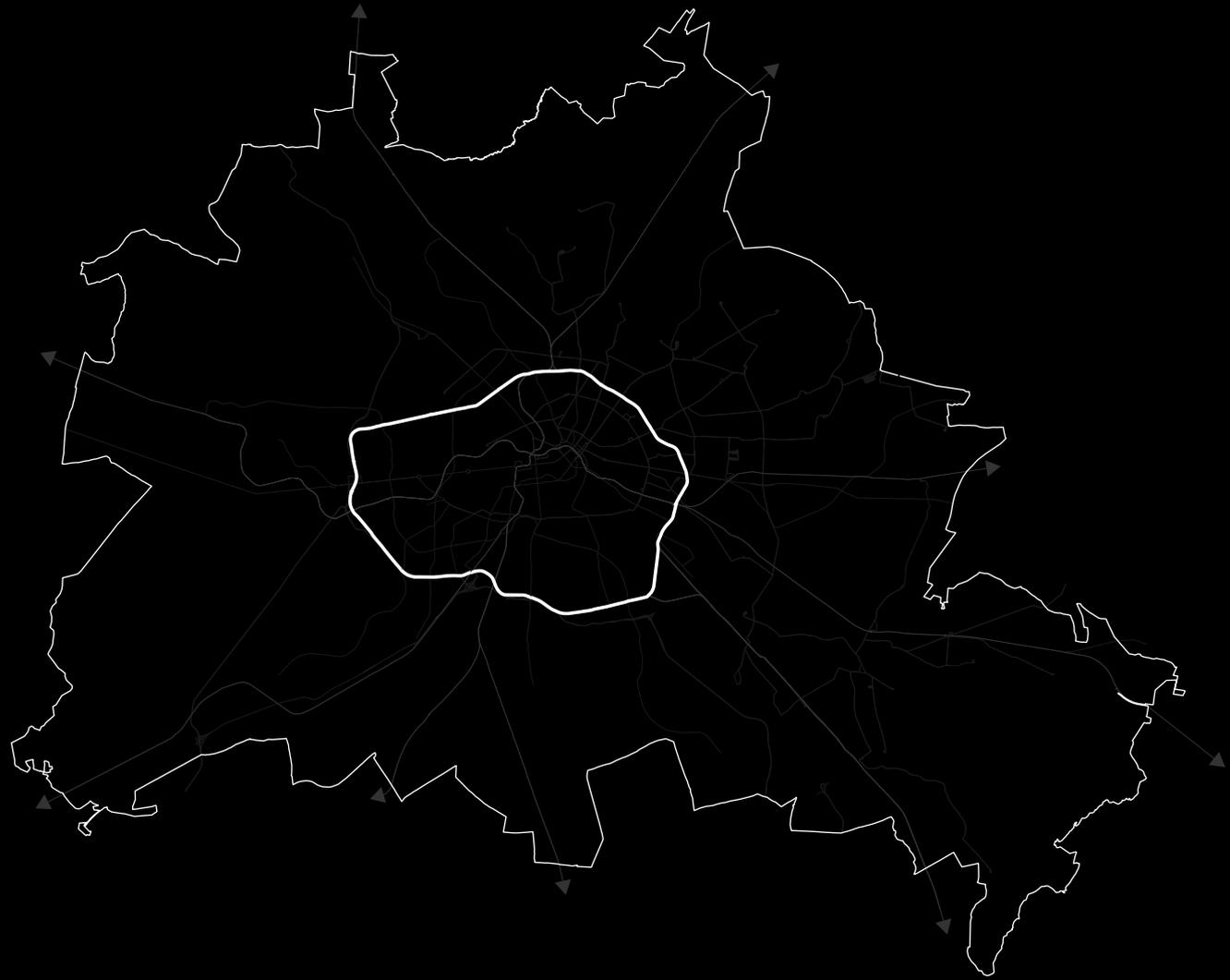
A GATE INTO THE CITY

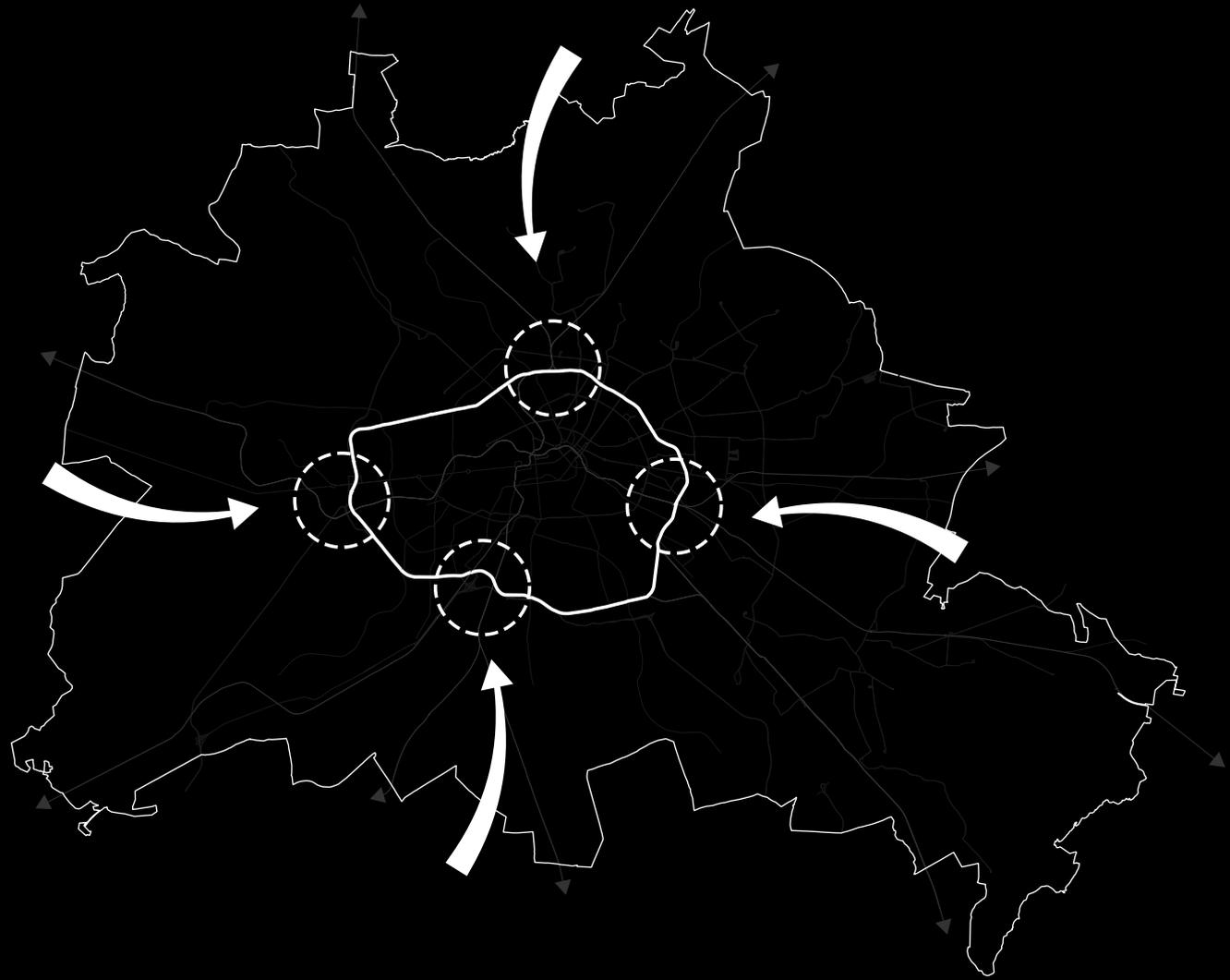


**WHAT IS AN HIGH-SPEED
TERMINAL FOR BERLIN?**

Berlin Mobility Act
BRANDENBURGER TOR 2.0



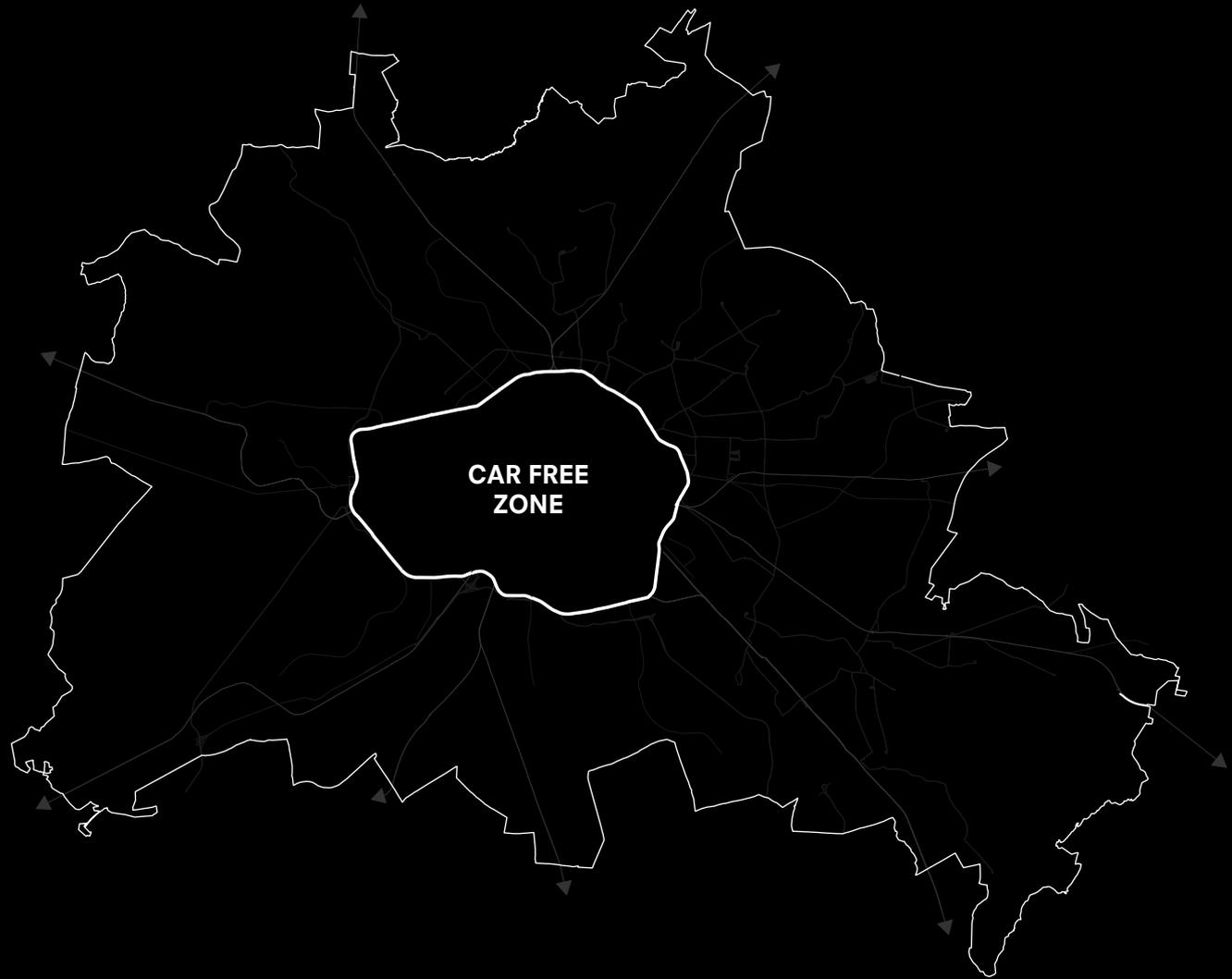


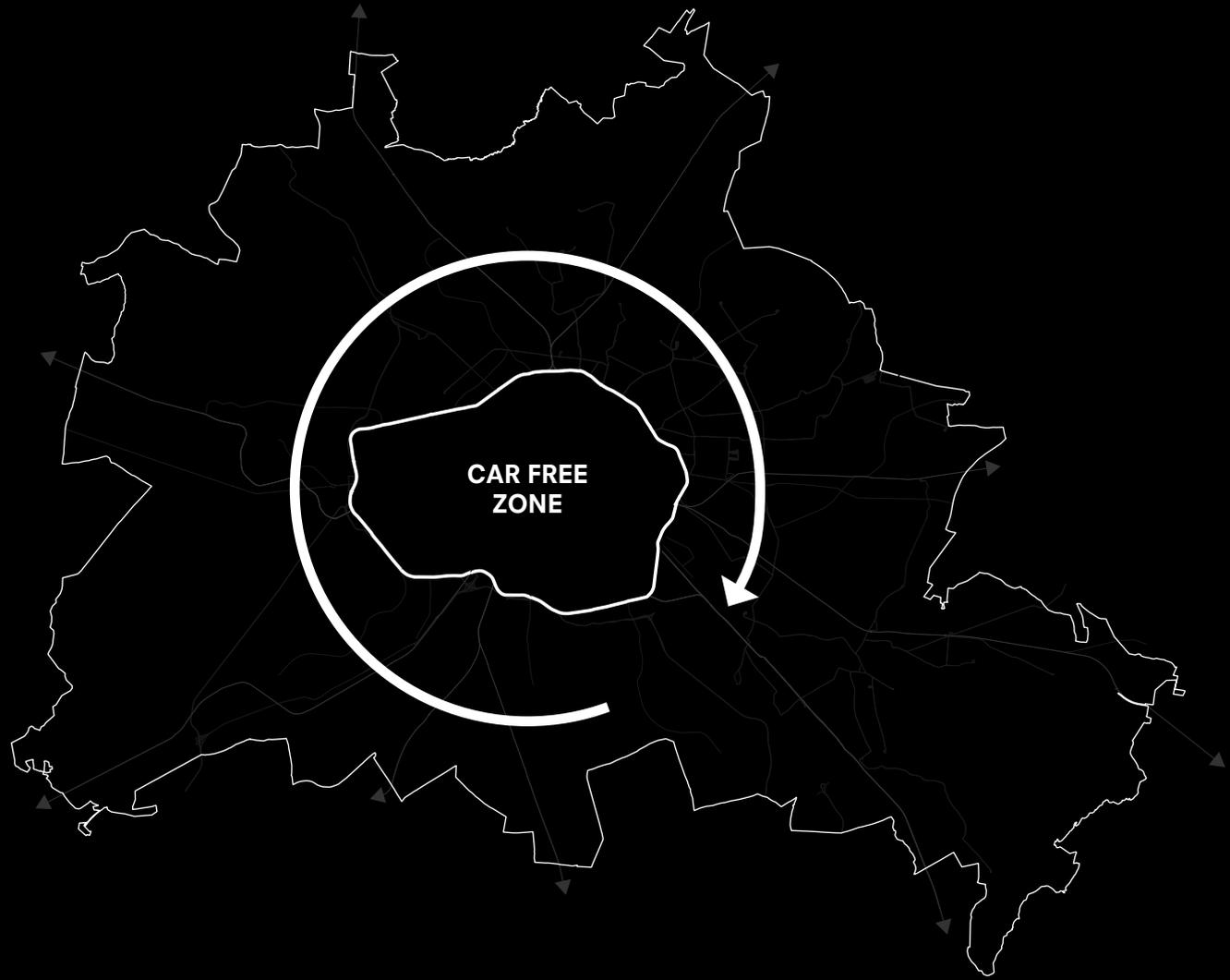


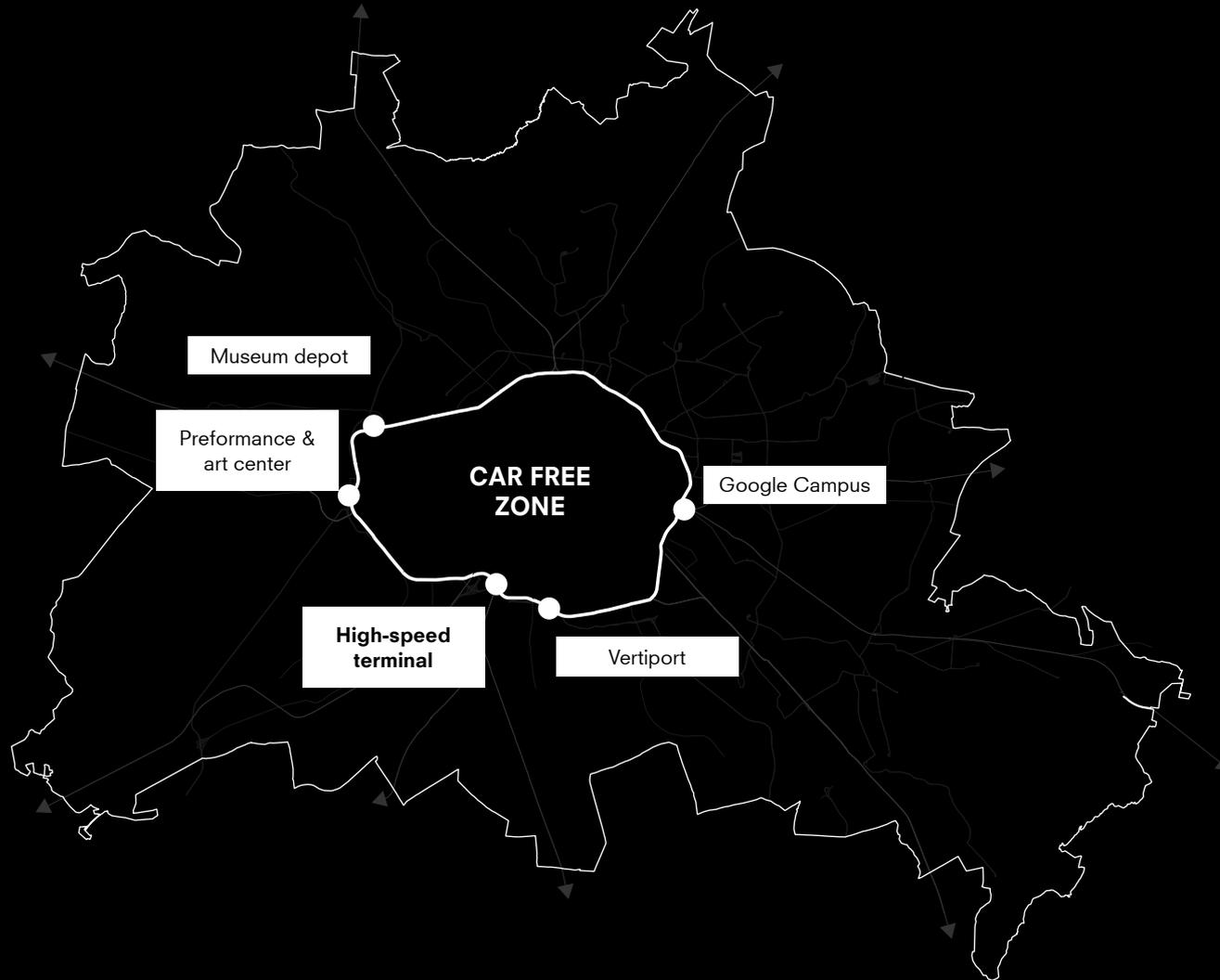
A CLASH OF INFRASTRUCTURE



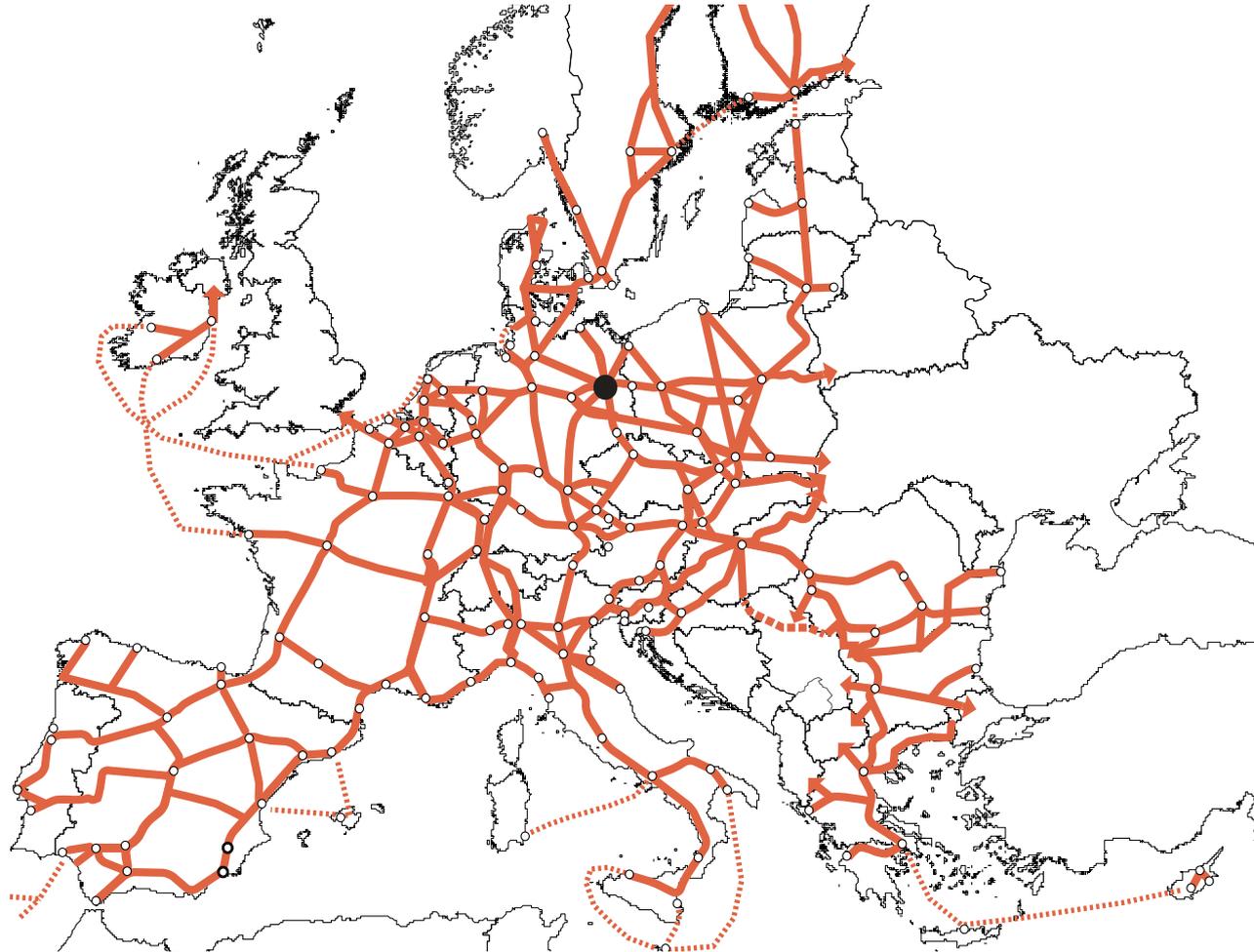




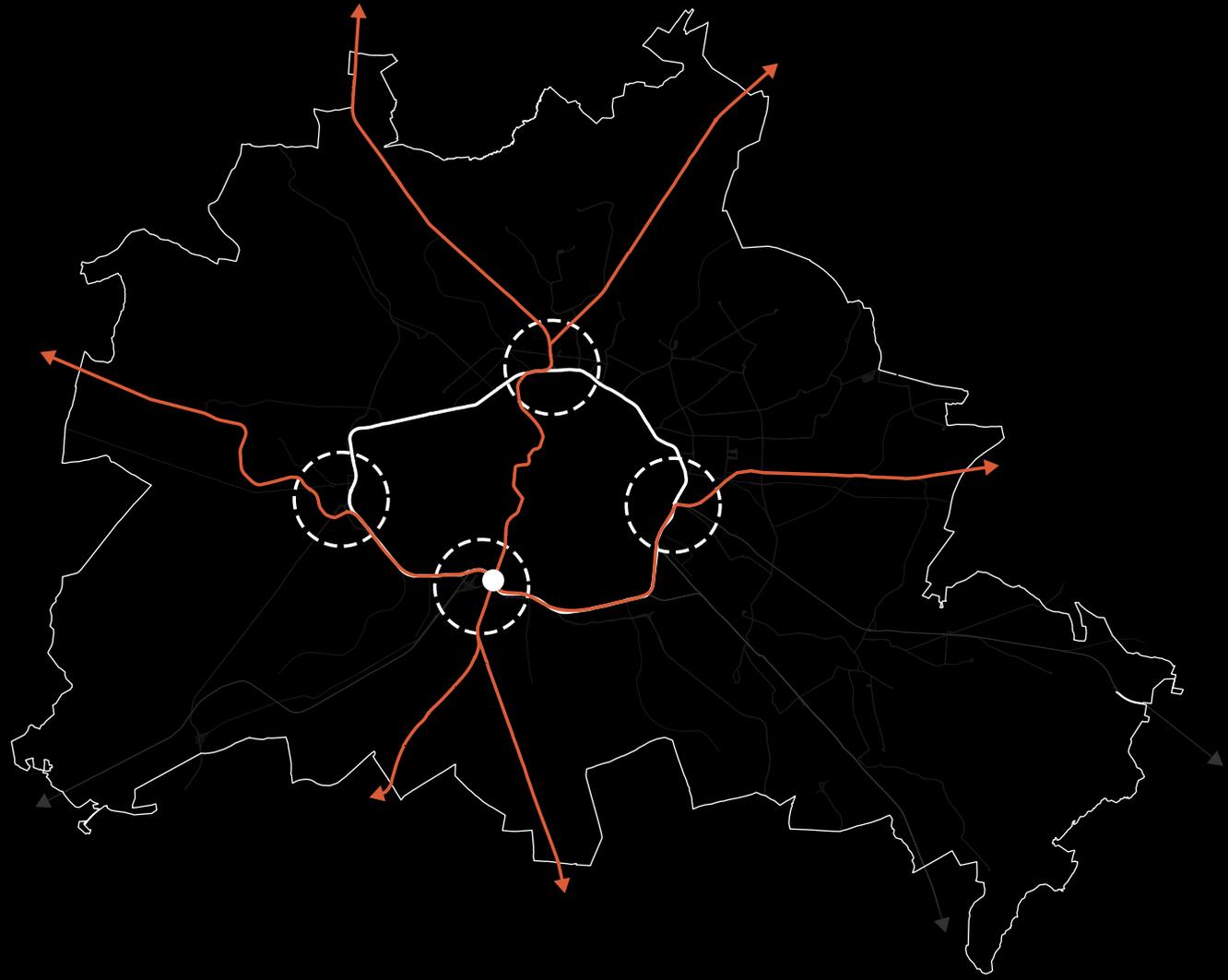




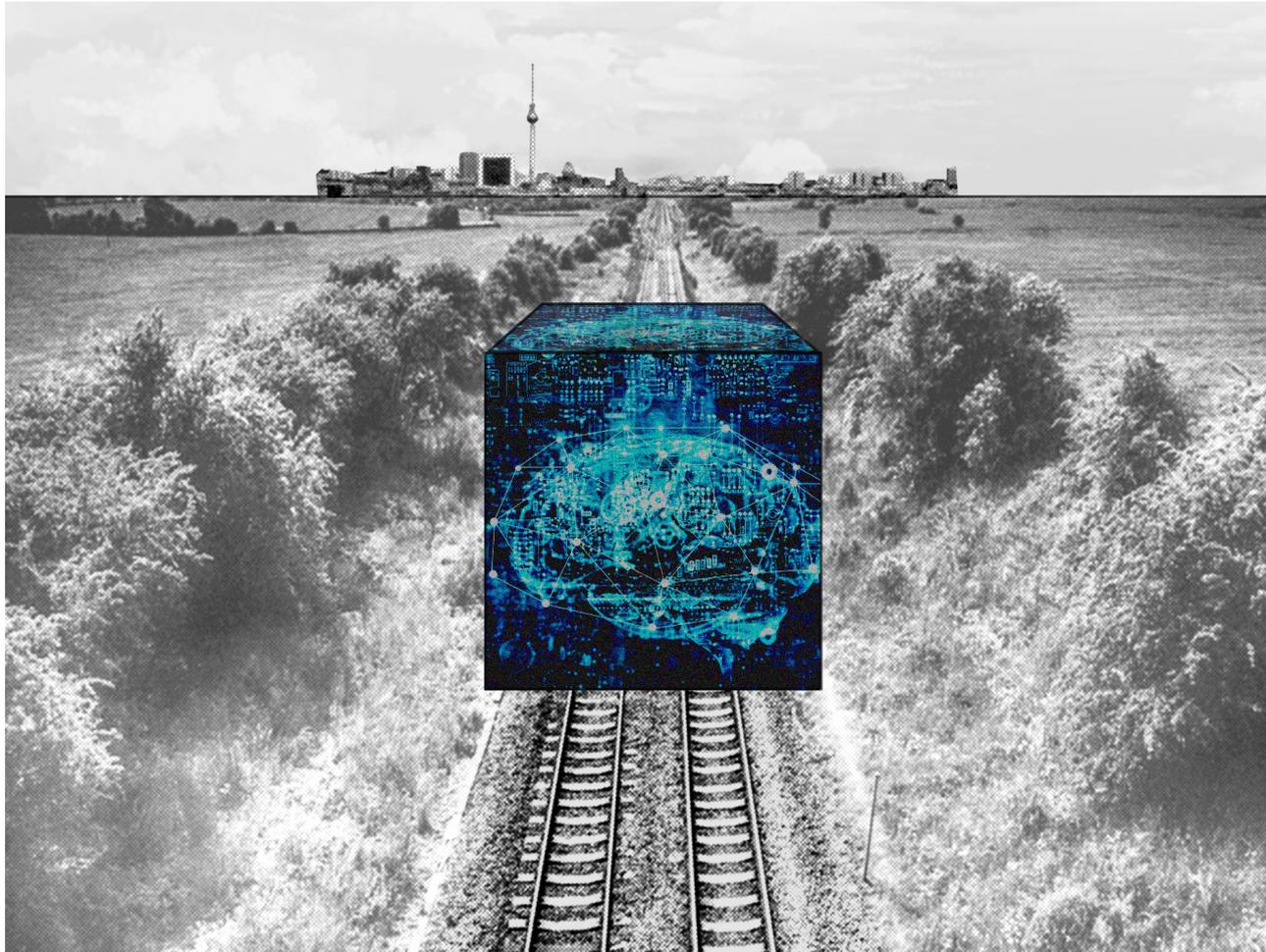
CONNECTED TO A BIGGER NETWORK



Trans-European Transport Network



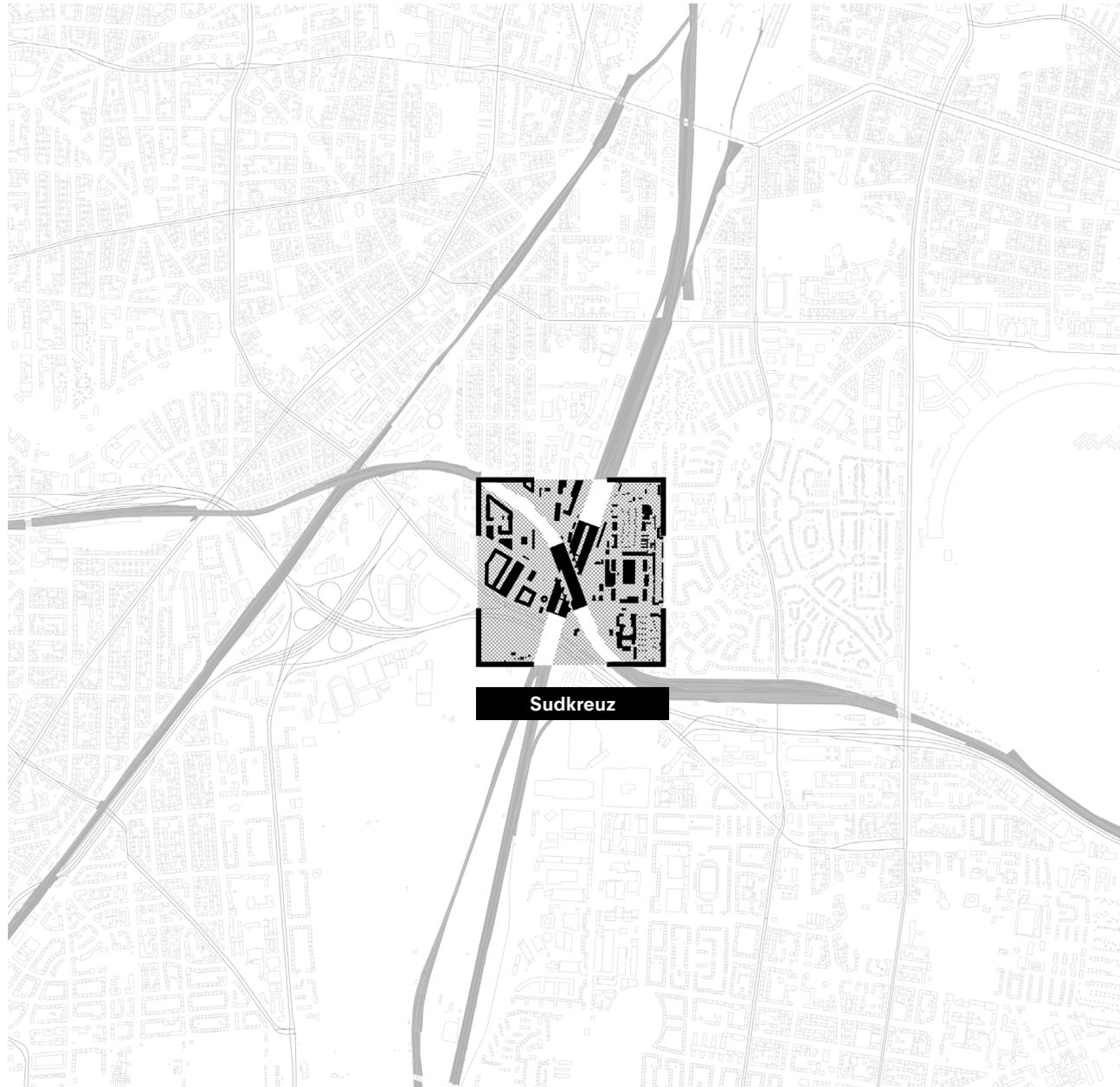
ONE OF BERLIN'S NEW CITY GATES



CHAPTER 3
HIGH-SPEED
TERMINAL BERLIN

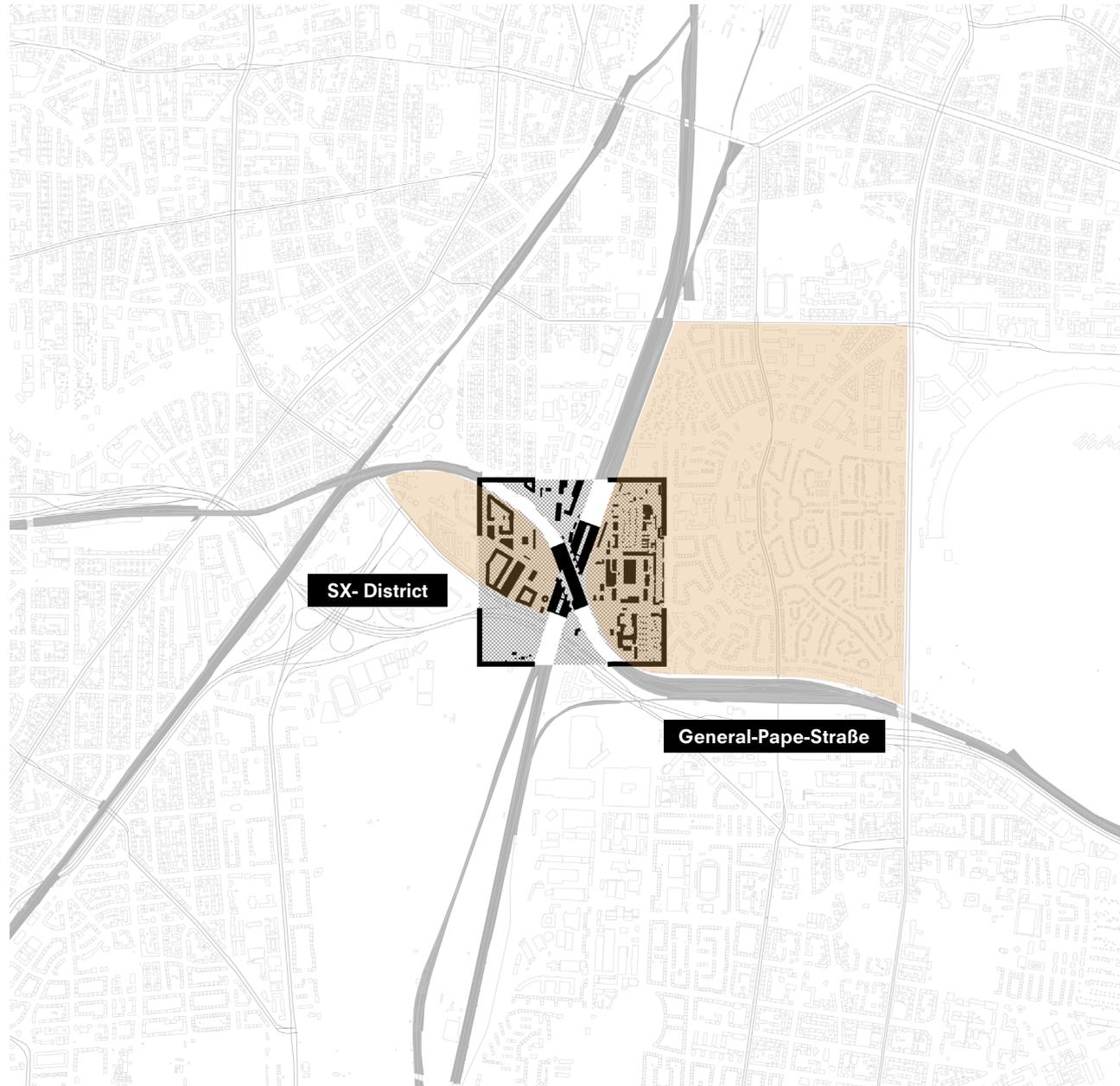
Site

BERLIN'S SOUTHERN JUNCTION



Site

BERLIN'S SOUTHERN JUNCTION



Site
SX-DISTRICT



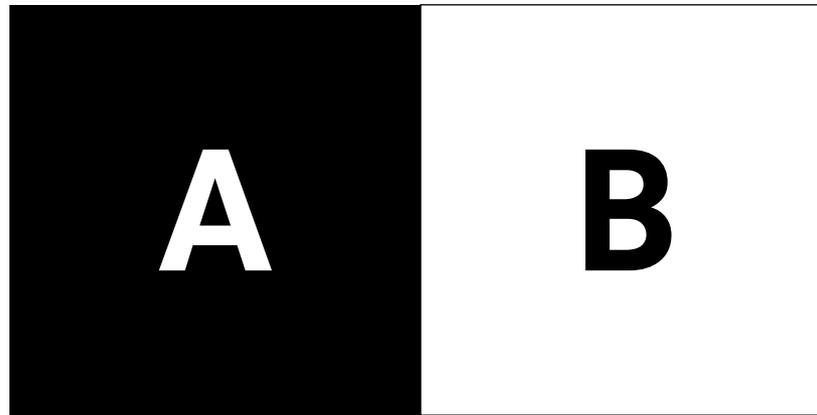
Site

GENERAL-PAPE-STRASSE



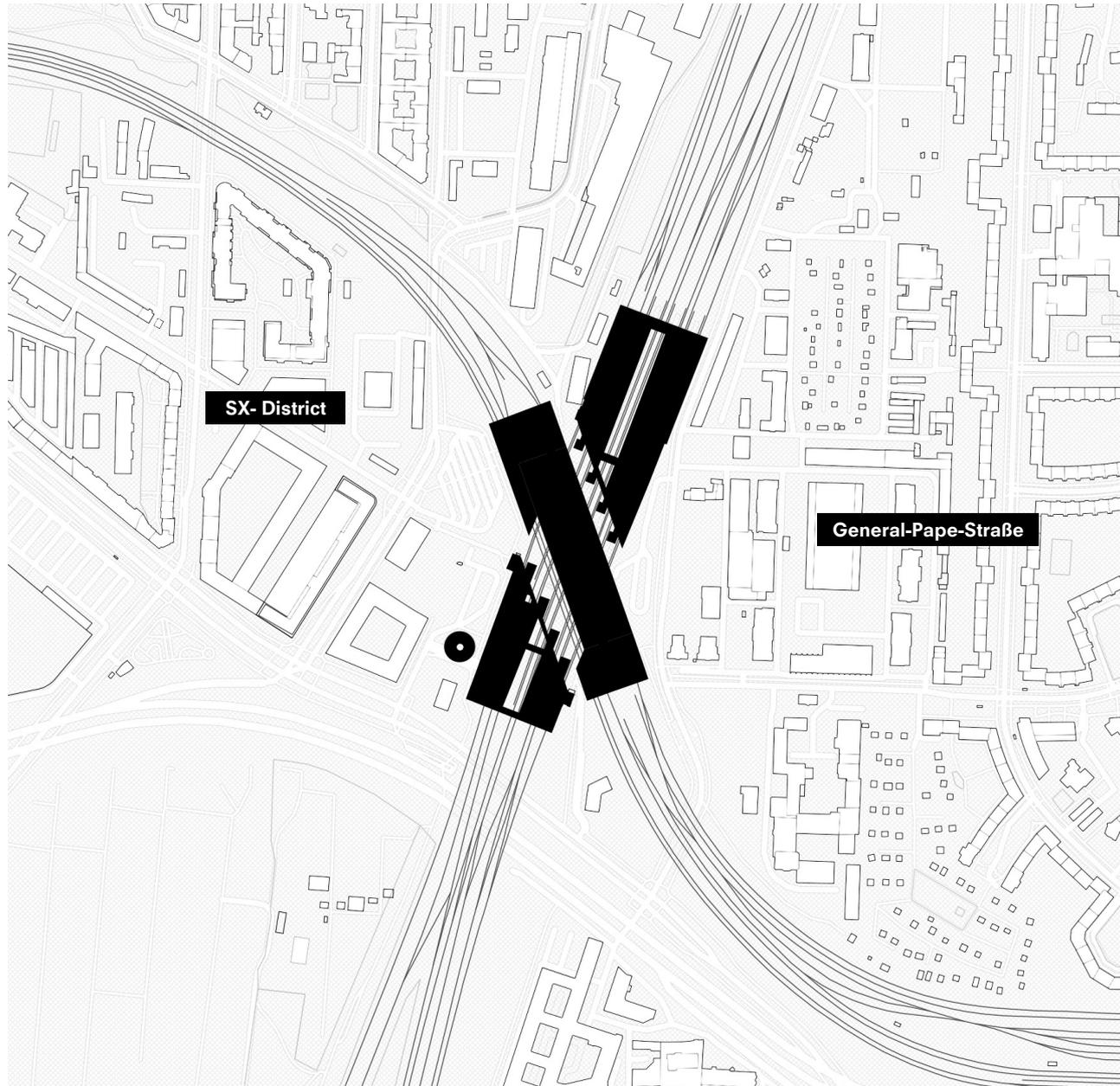
Site

CONTRASTING LANDSCAPE



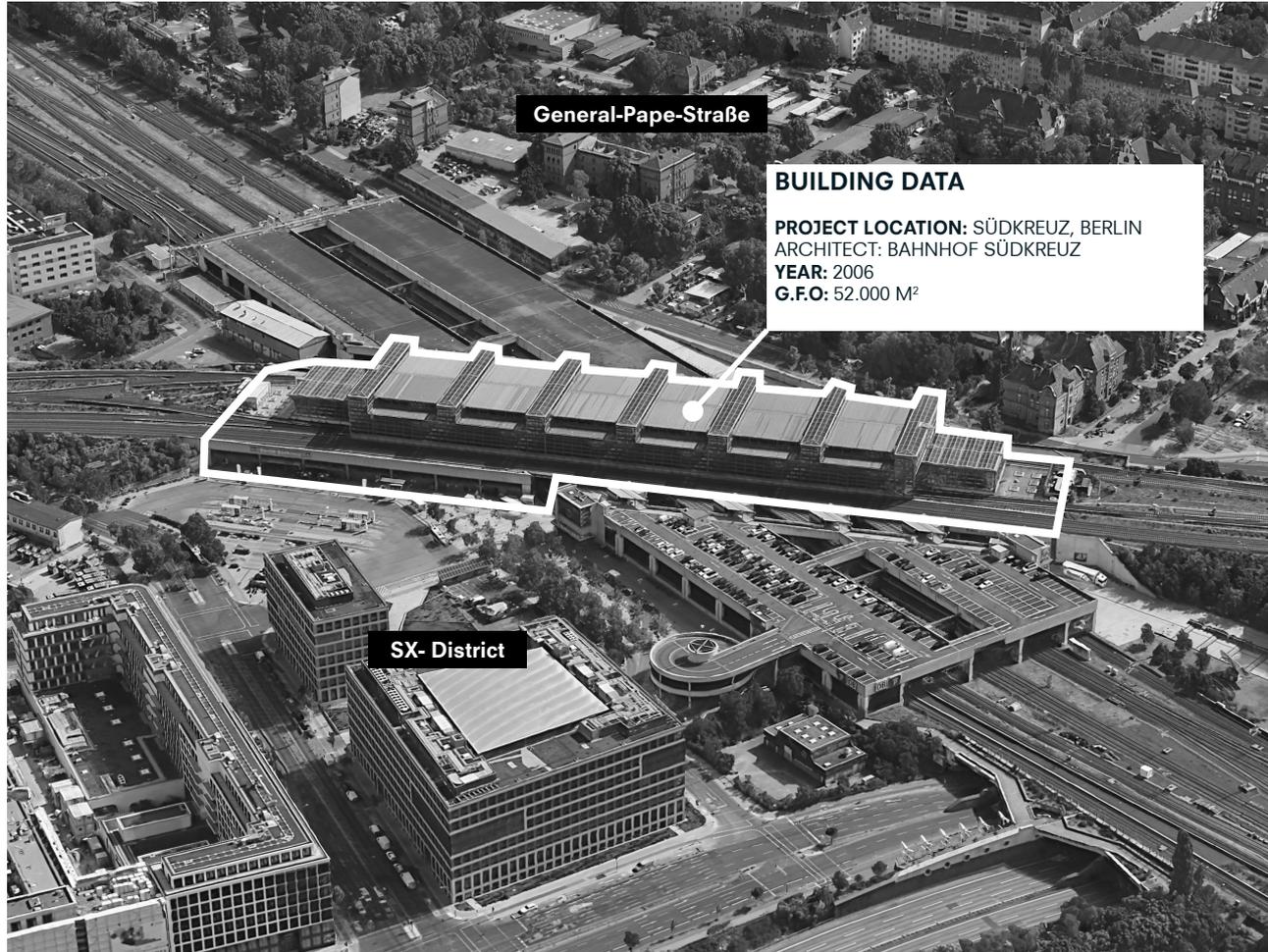
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BERLIN'S MAIN ARTERIES



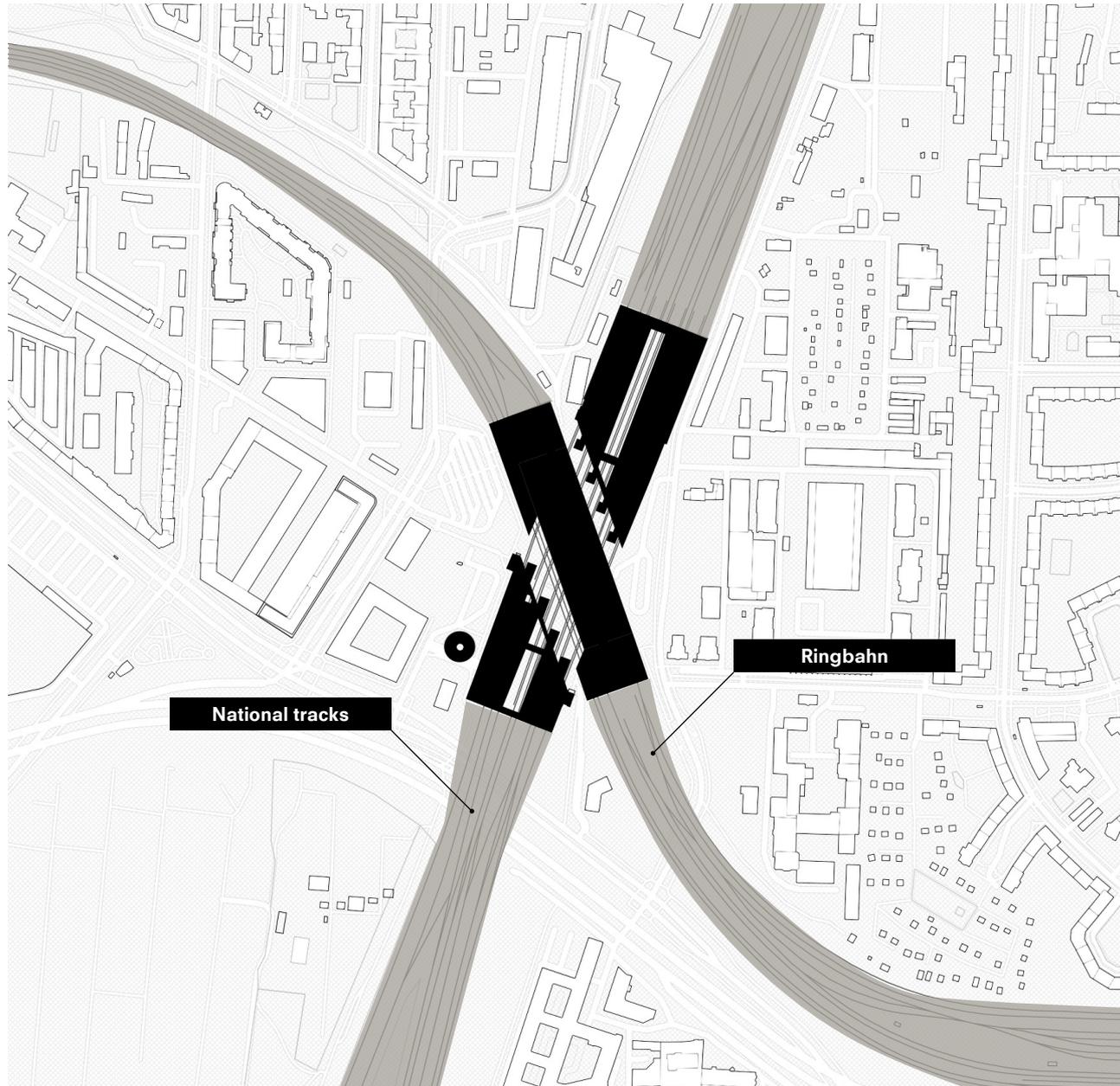
Site

BERLIN'S MAIN ARTERIES



Site

BERLIN'S MAIN ARTERIES



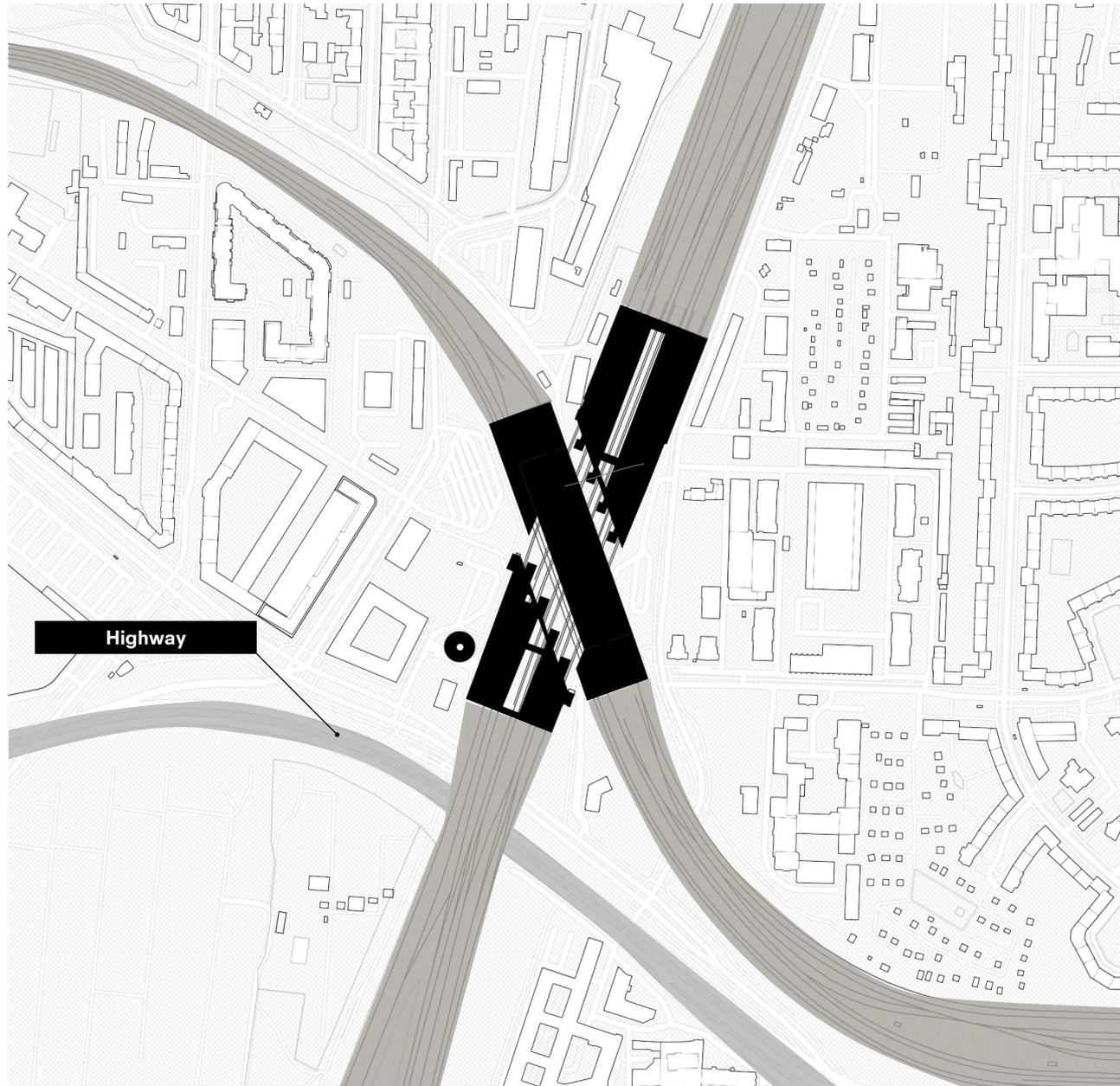
Site

DISCONNECTED BY RAIL TRACKS



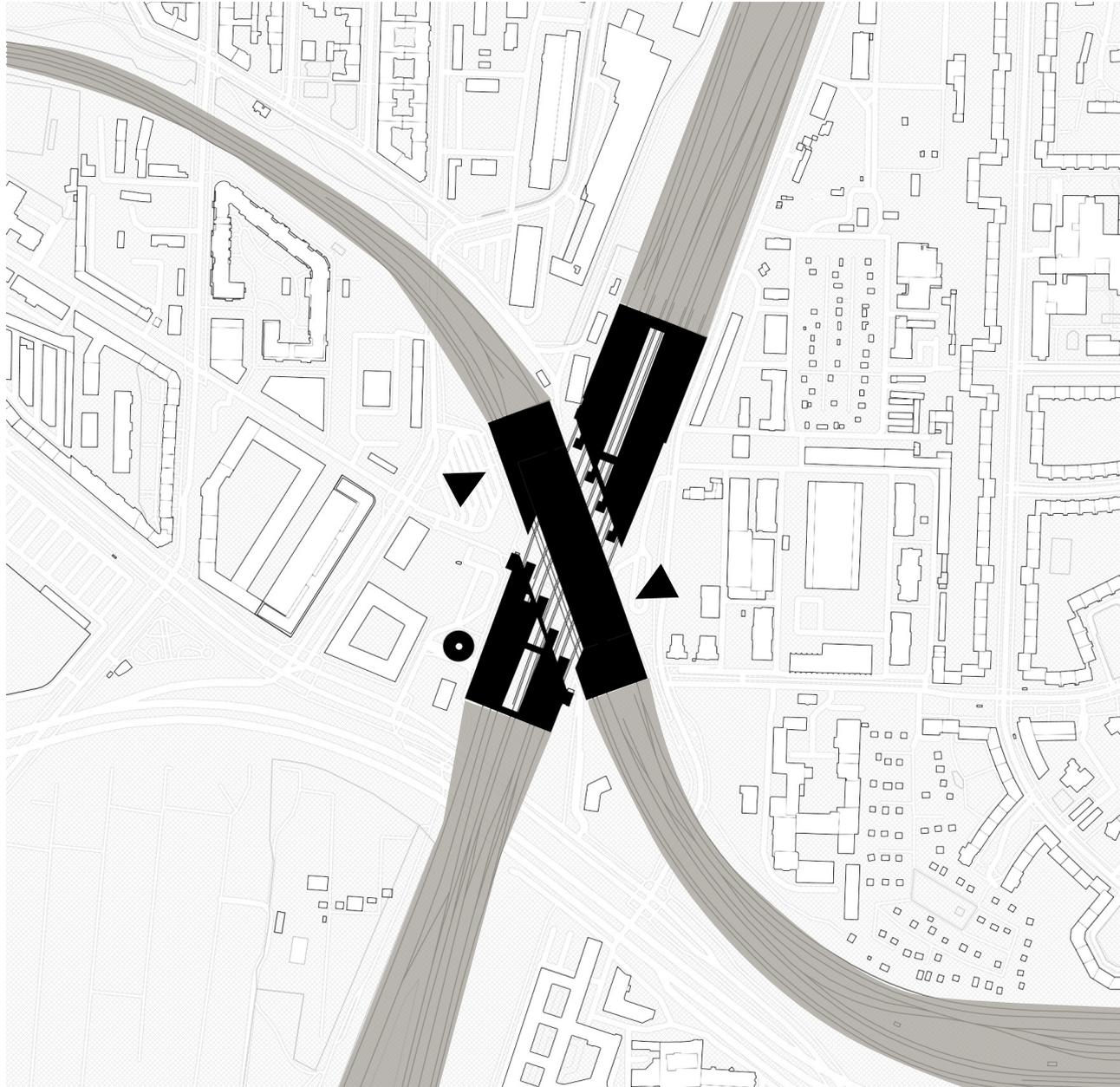
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DISCONNECTED BY RAIL TRACKS

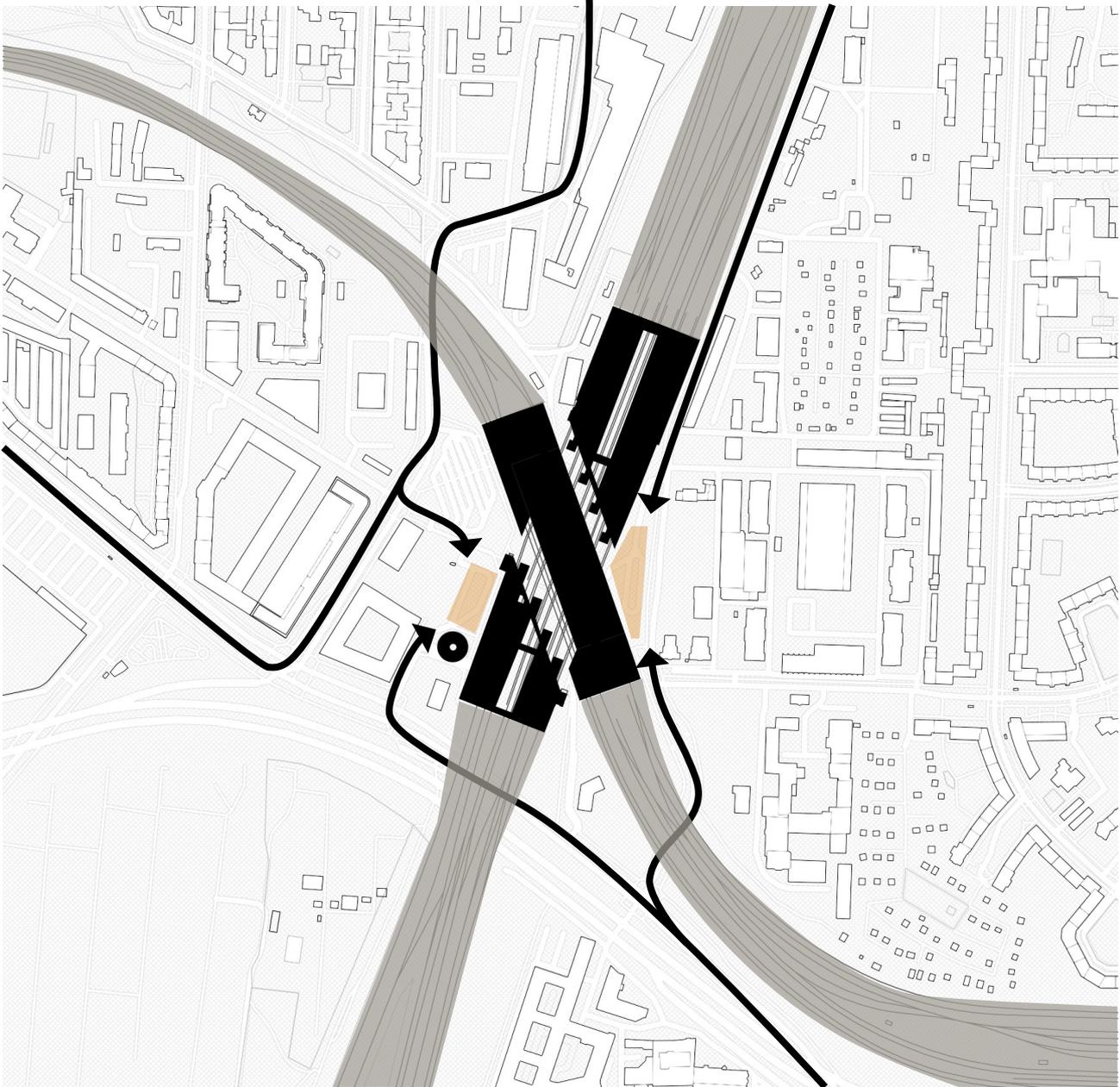


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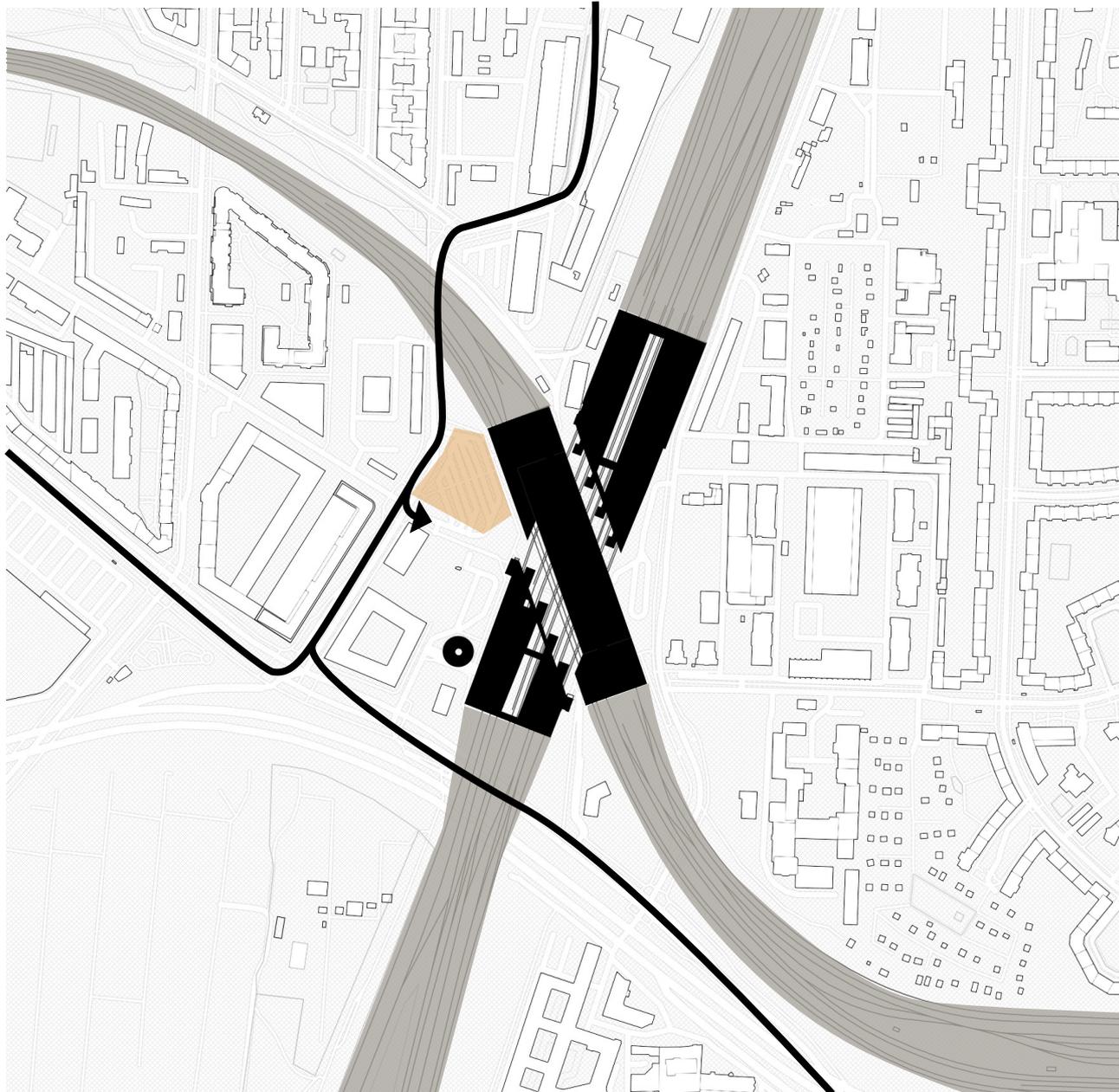
ENTRANCE TO STATION



Site
APPROACH BY CAR

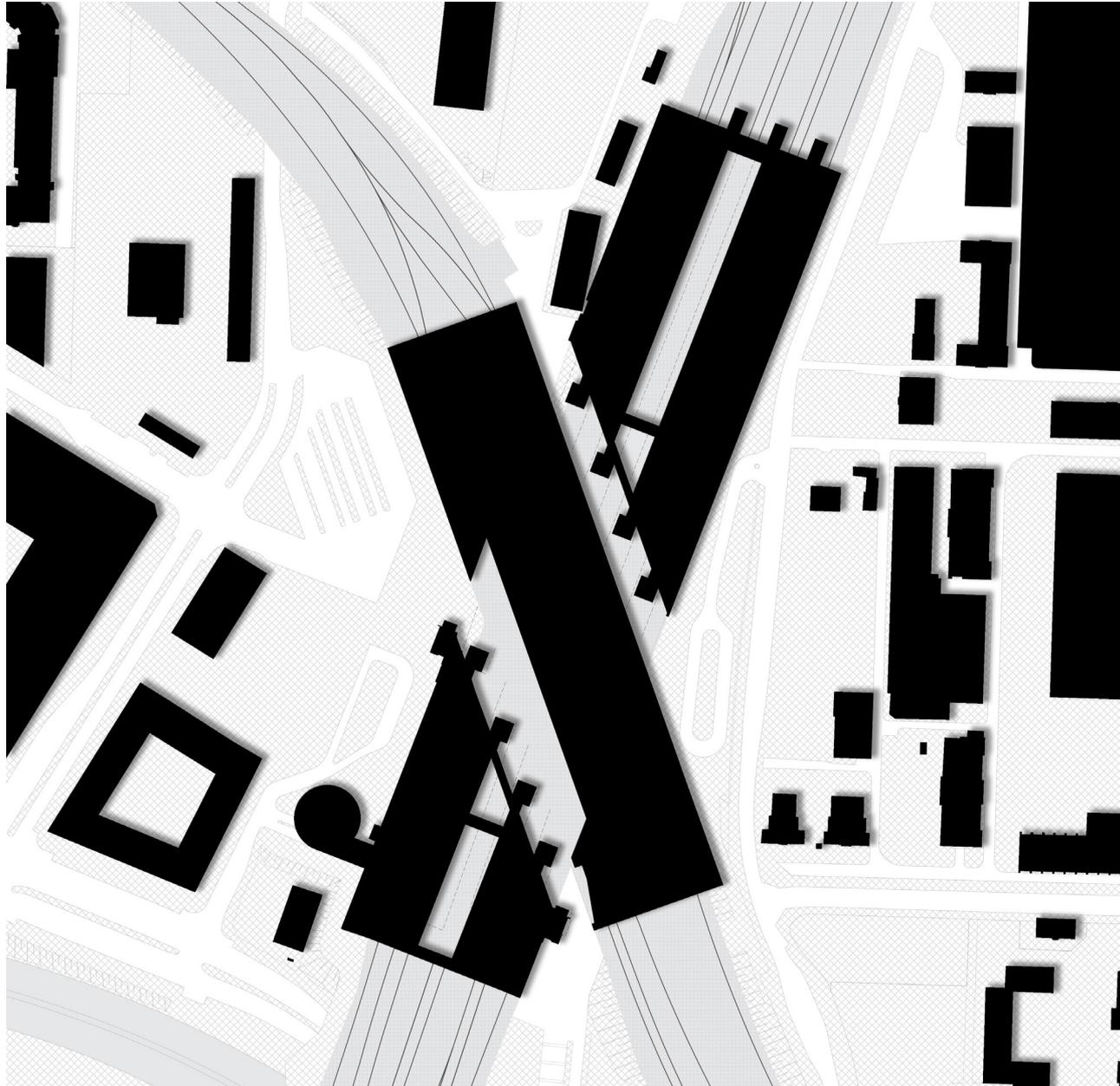


Site
APPROACH BY BUS



Site

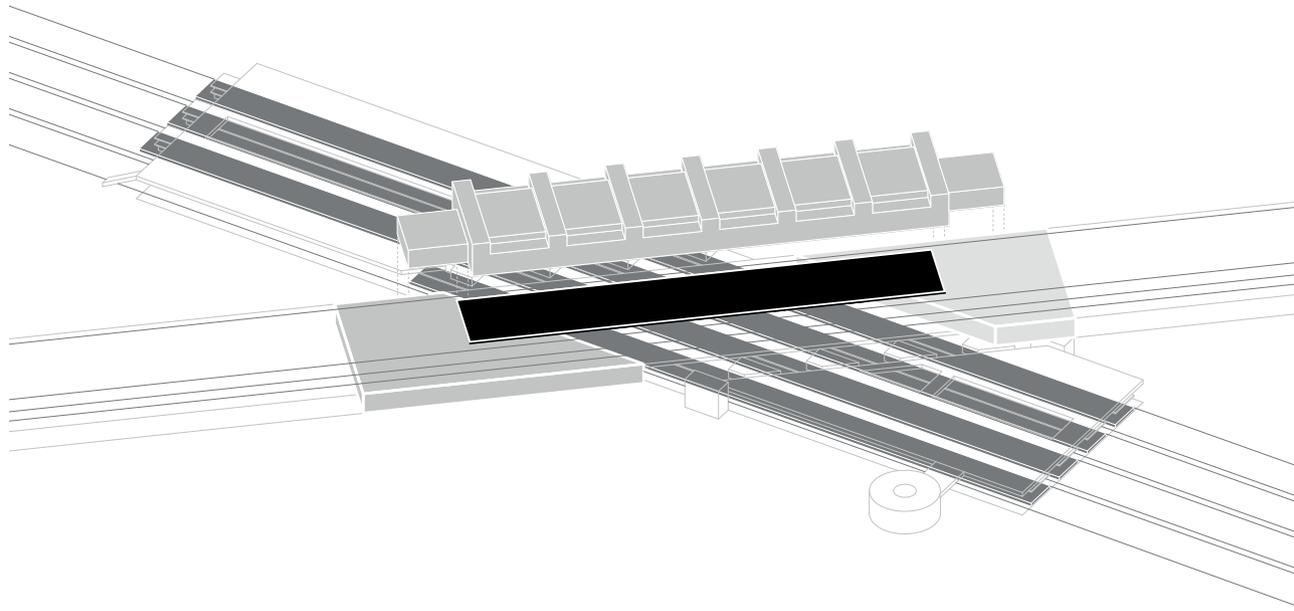
BERLIN'S MAIN ARTERIES





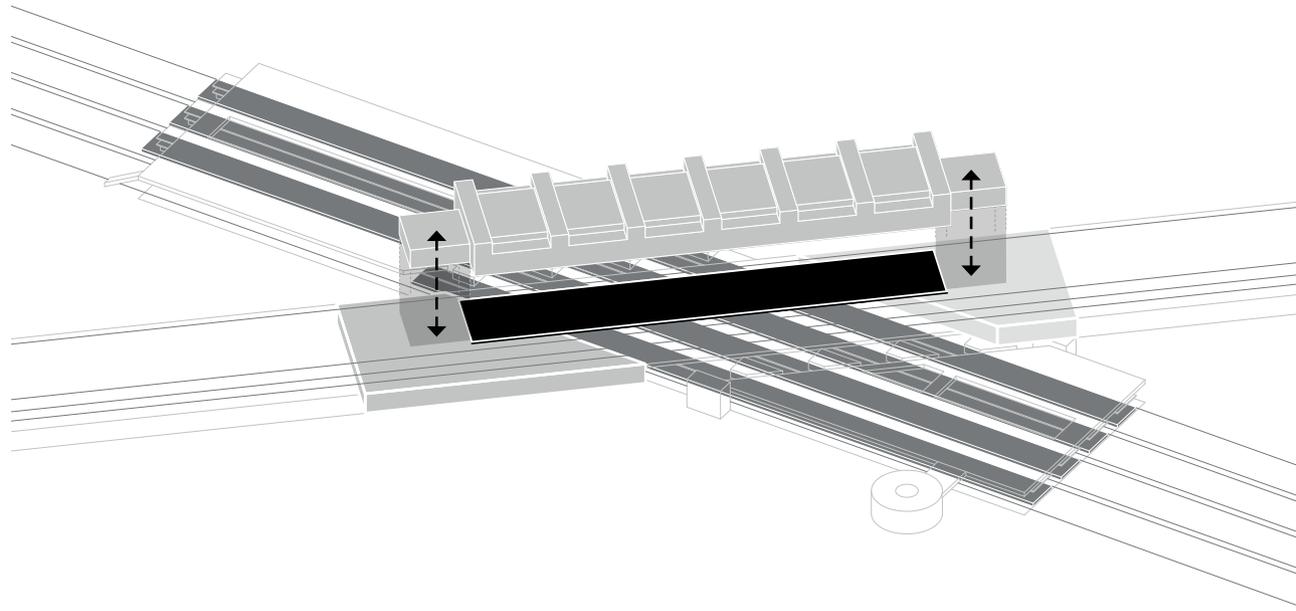
Sudkreuz station

DESIGNED FOR ITS FUNCTION



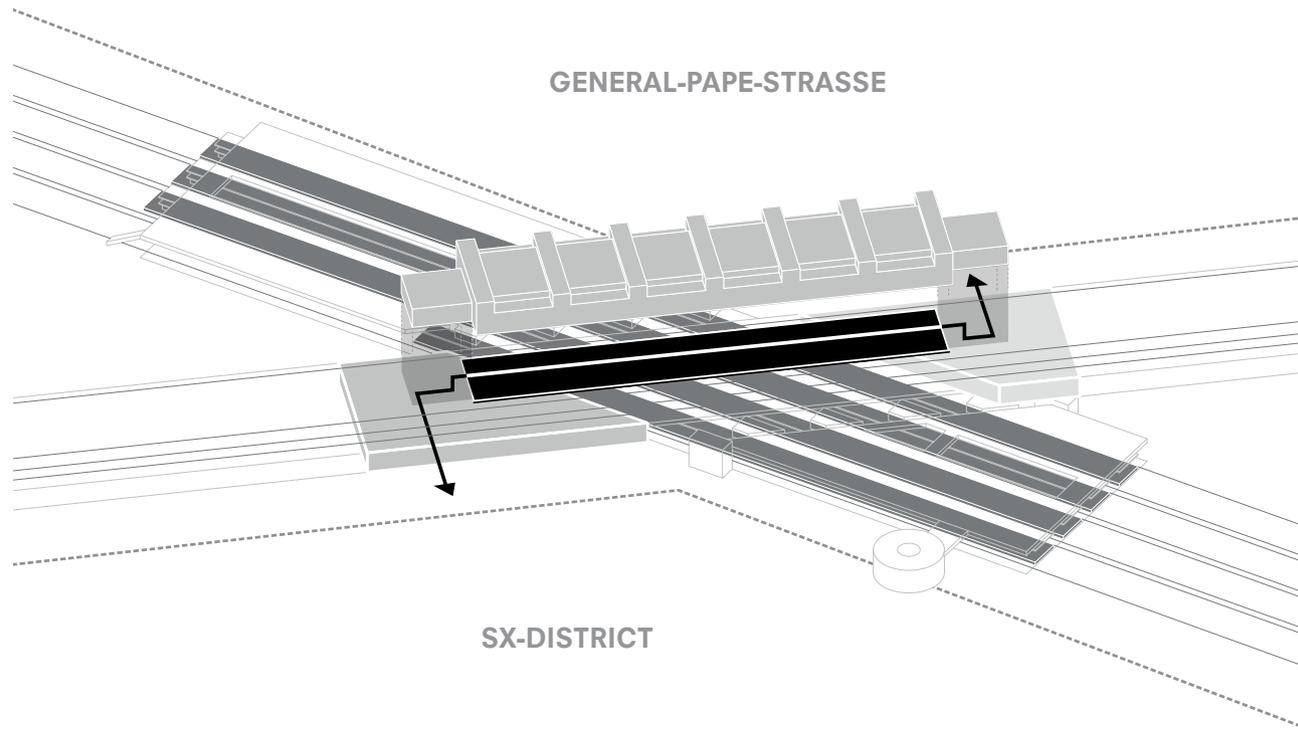
Sudkreuz station

DESIGNED FOR ITS FUNCTION



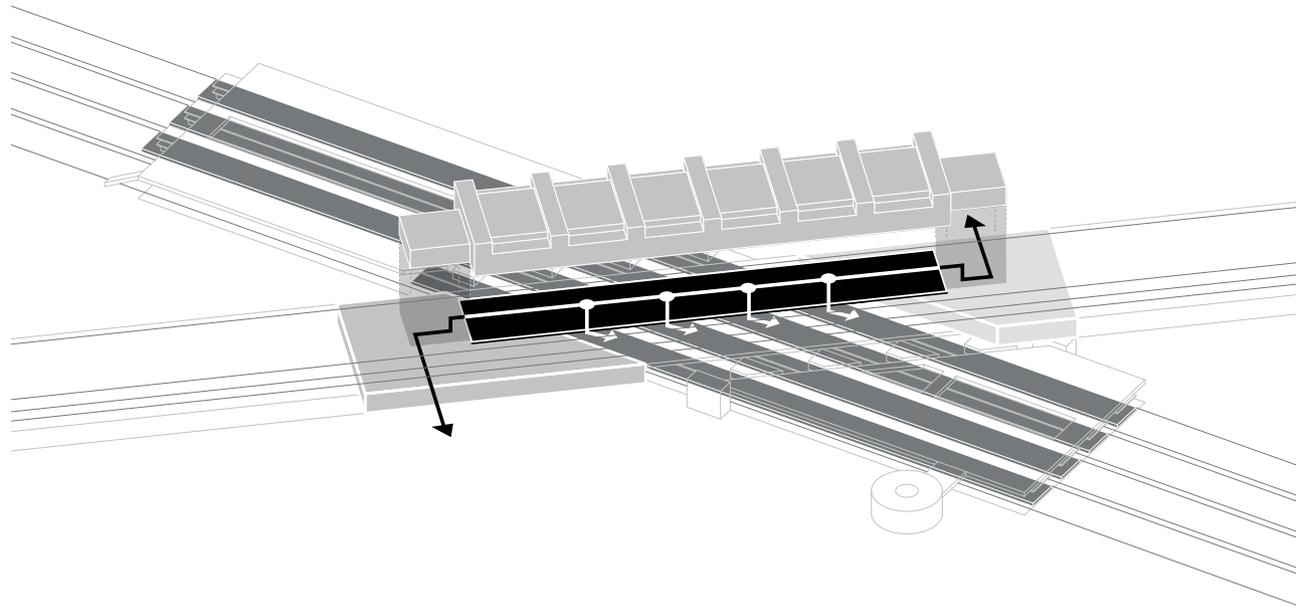
Sudkreuz station

DESIGNED FOR ITS FUNCTION



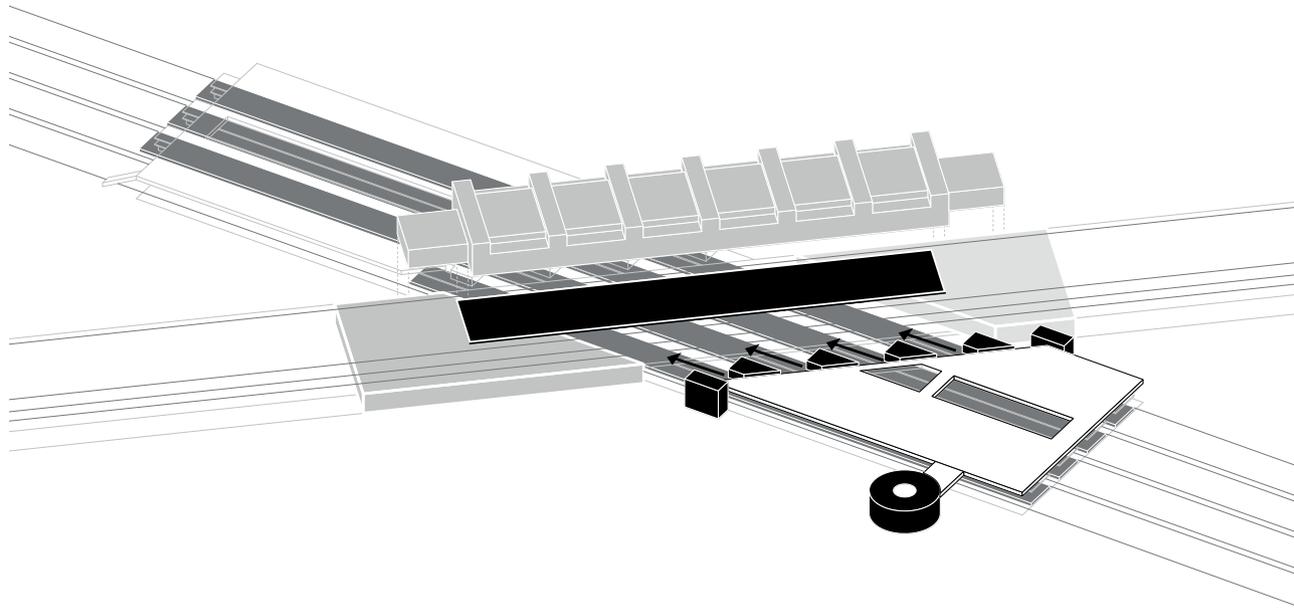
Sudkreuz station

DESIGNED FOR ITS FUNCTION



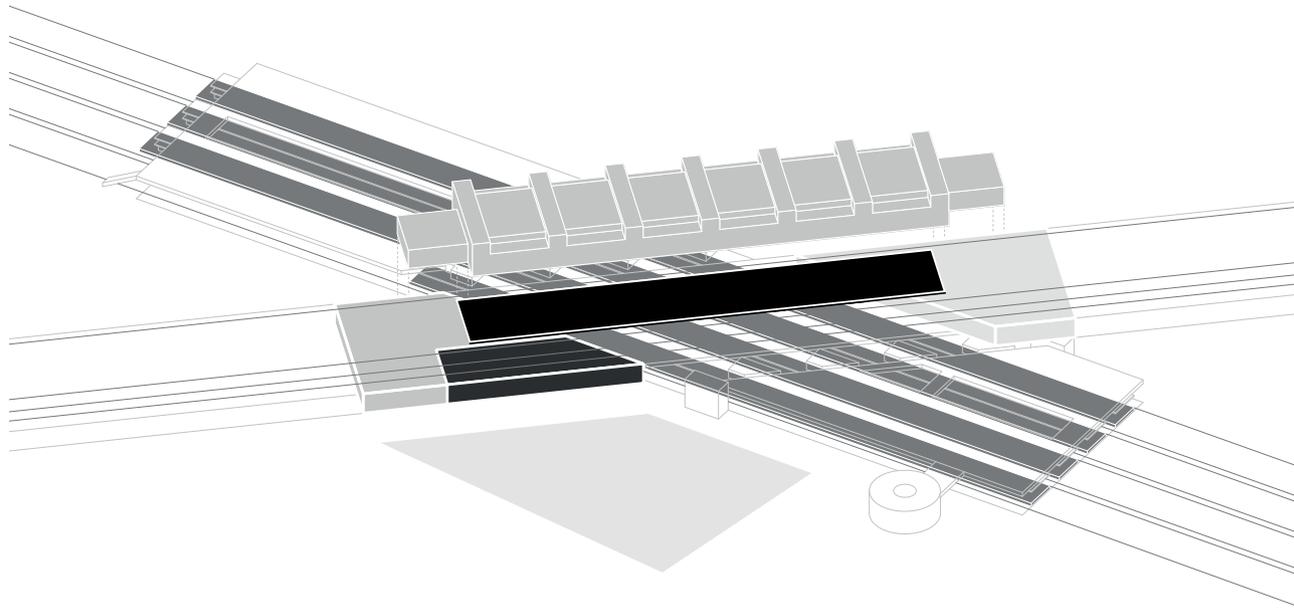
Sudkreuz station

DESIGNED FOR ITS FUNCTION

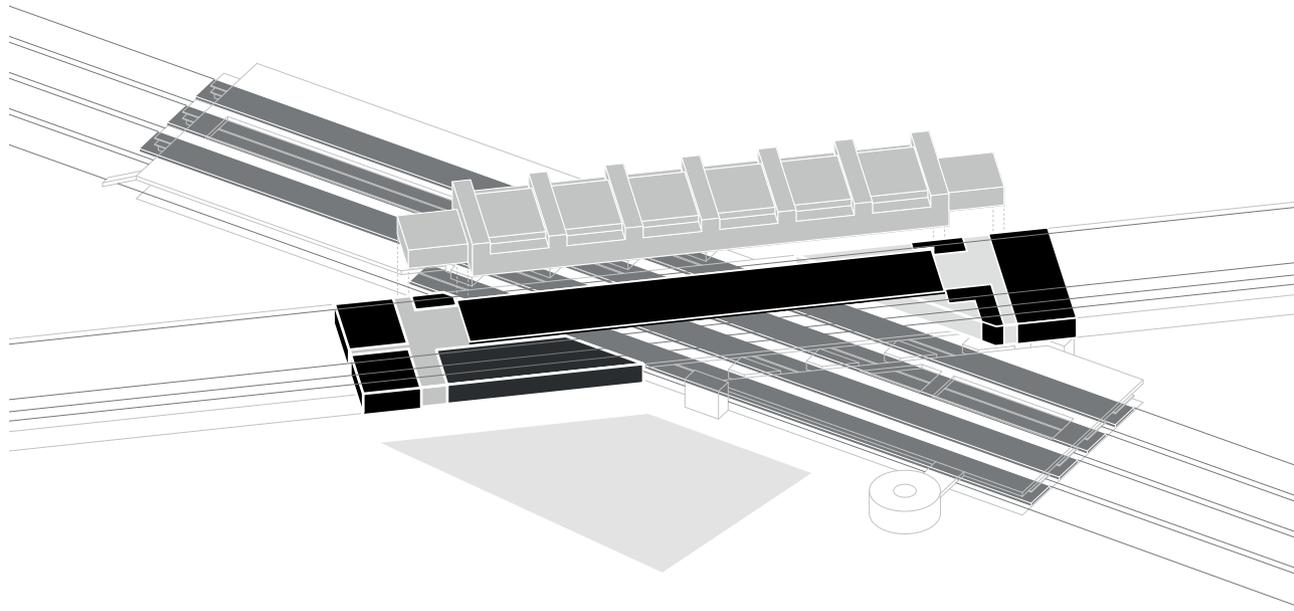


Sudkreuz station

DESIGNED FOR ITS FUNCTION



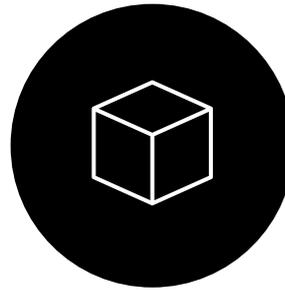
Sudkreuz station
DESIGNED FOR ITS FUNCTION



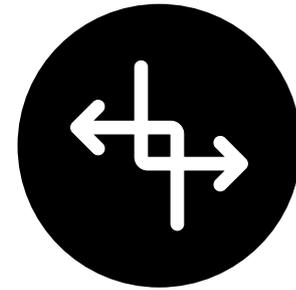
WHAT IS GOOD



CLEAR CIRCULATION



ATRIUM

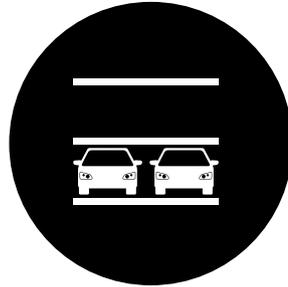


INFRASTRUCTURE JUNCTION

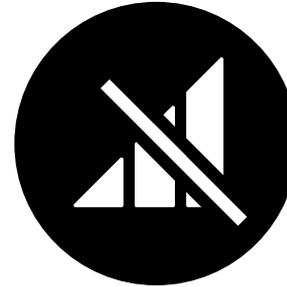
SUDKREUZ CHALLENGES



NO GREEN SPACE



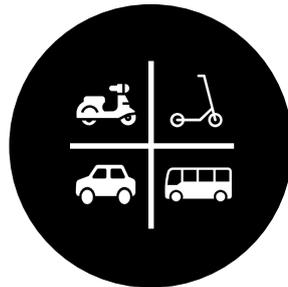
UNUSED PARKING DECK



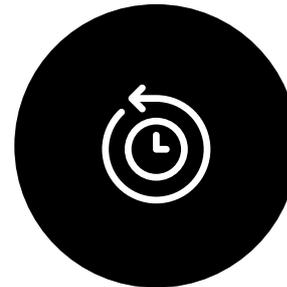
NO CONNECTION BETWEEN DISTRICTS



NO CLEAR ENTRANCE



SEPERATED MOBILITY PROGRAM

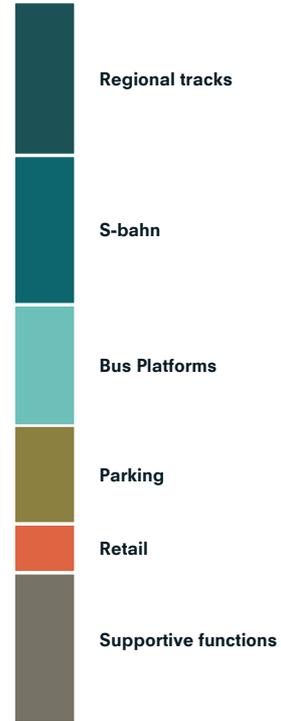


OUTDATED TICKETING



PROGRAM

Program PROGRAM



CURRENT PROGRAM

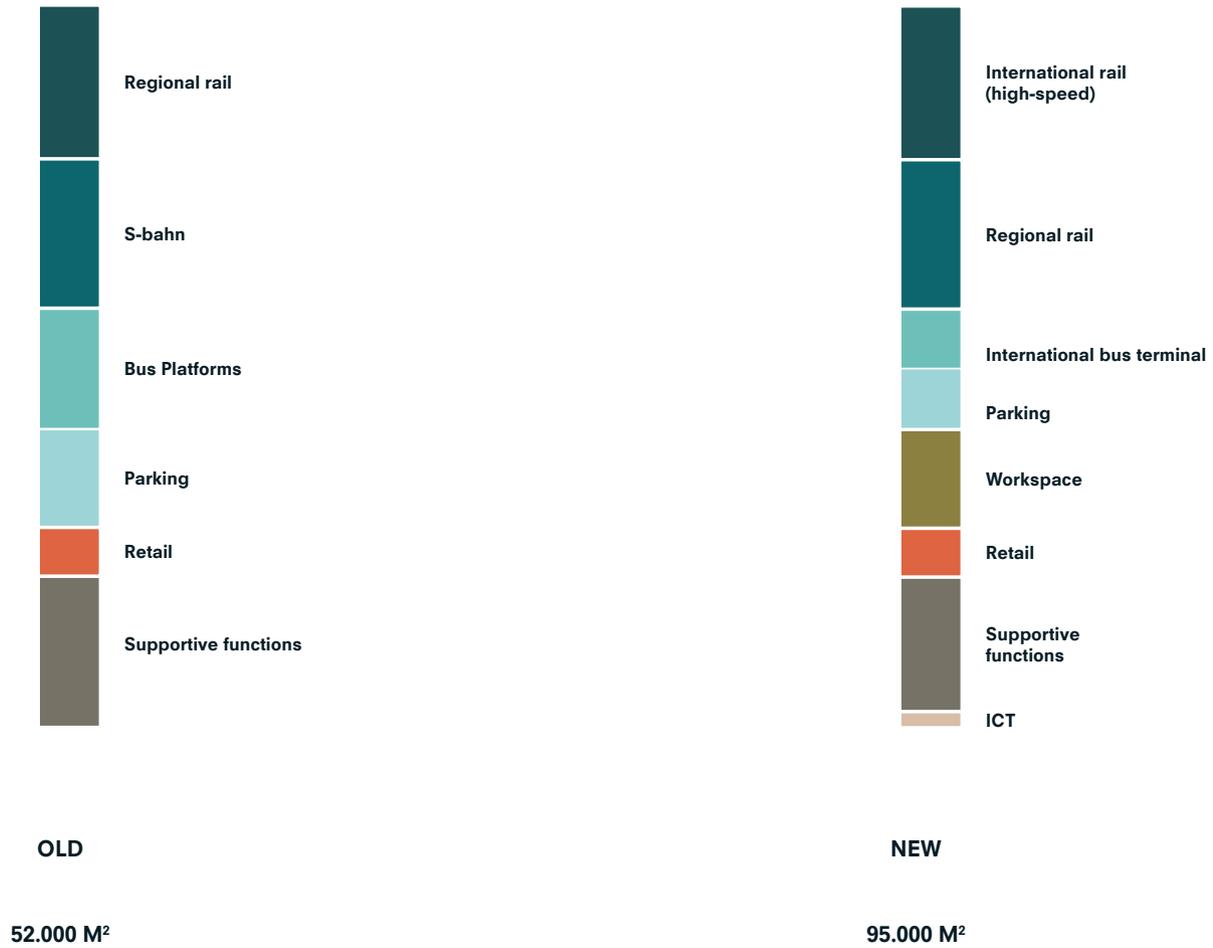
Program

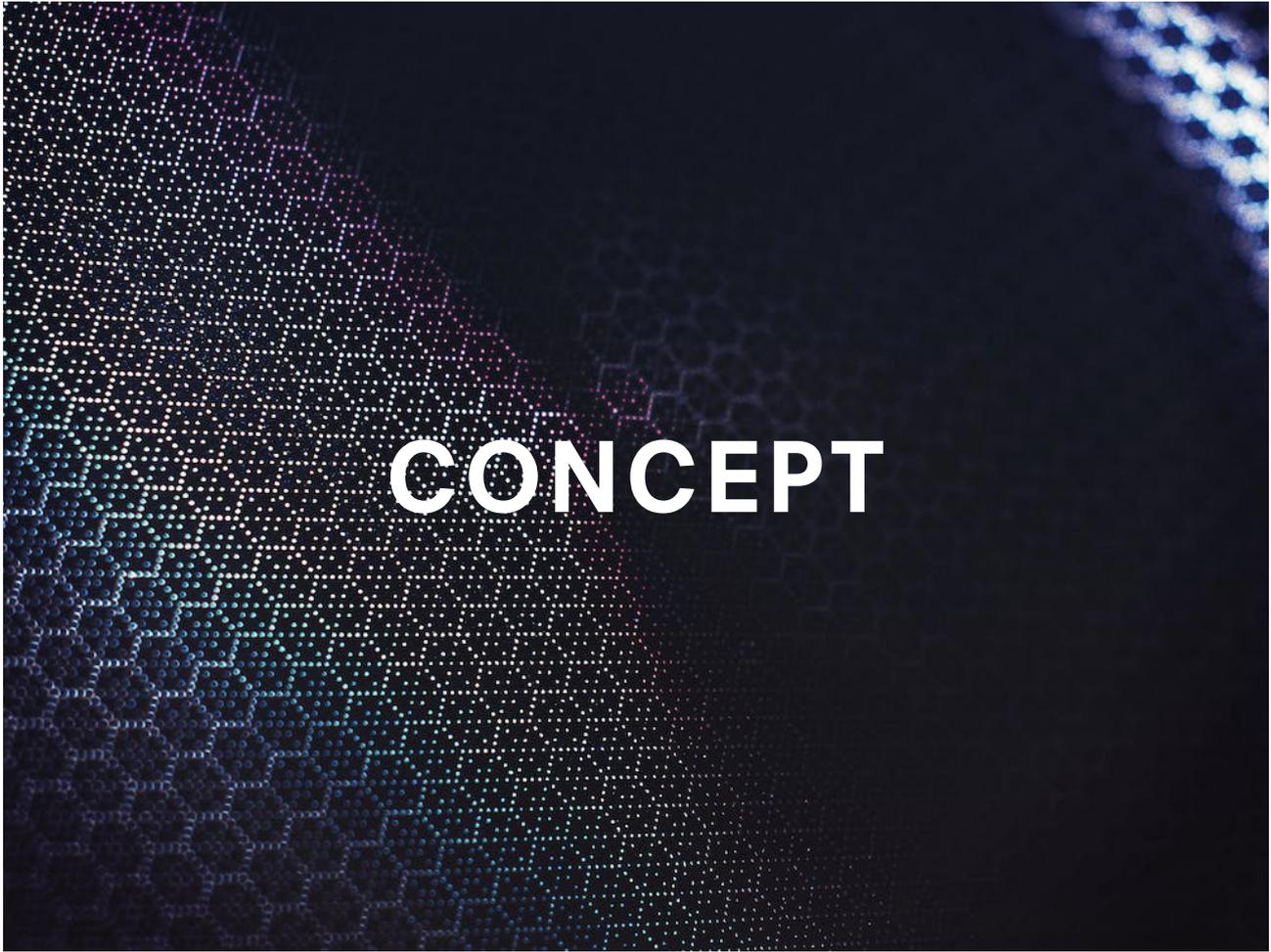
WHAT TO ADD



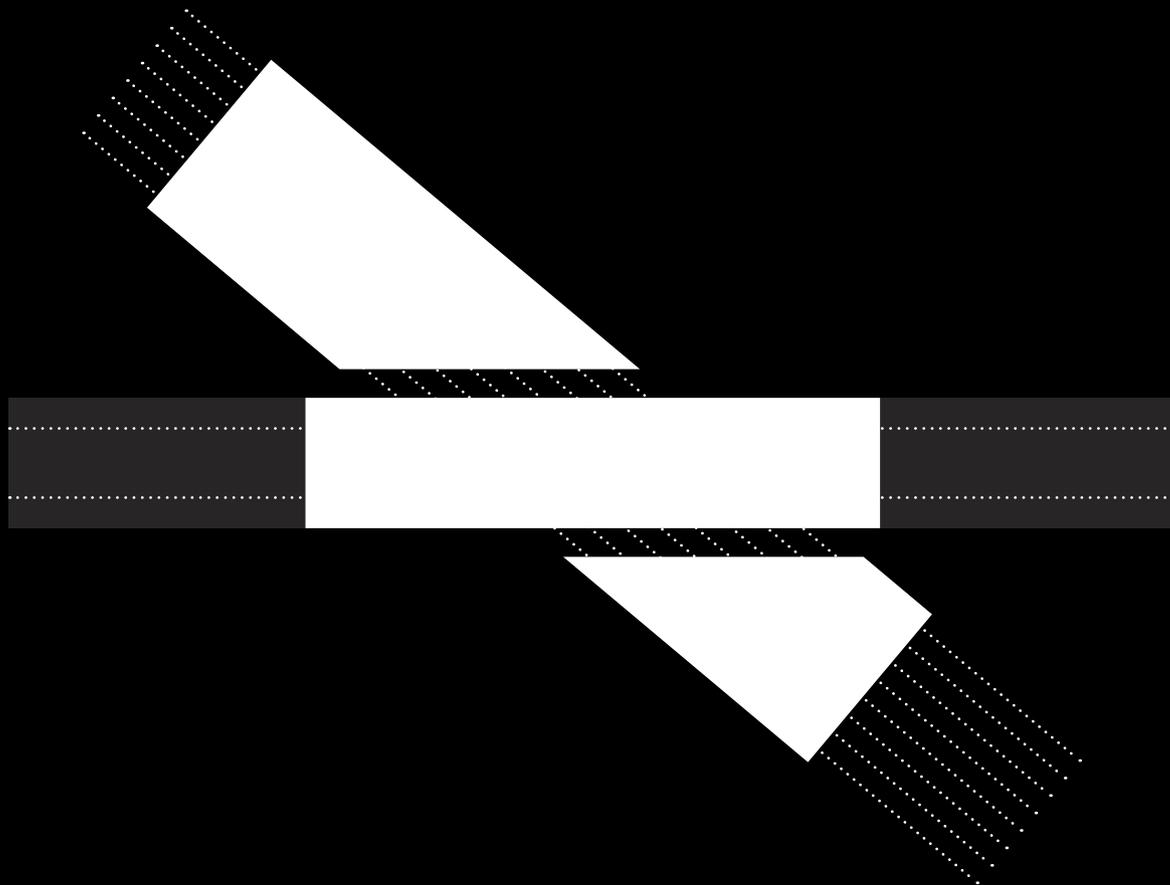
Program

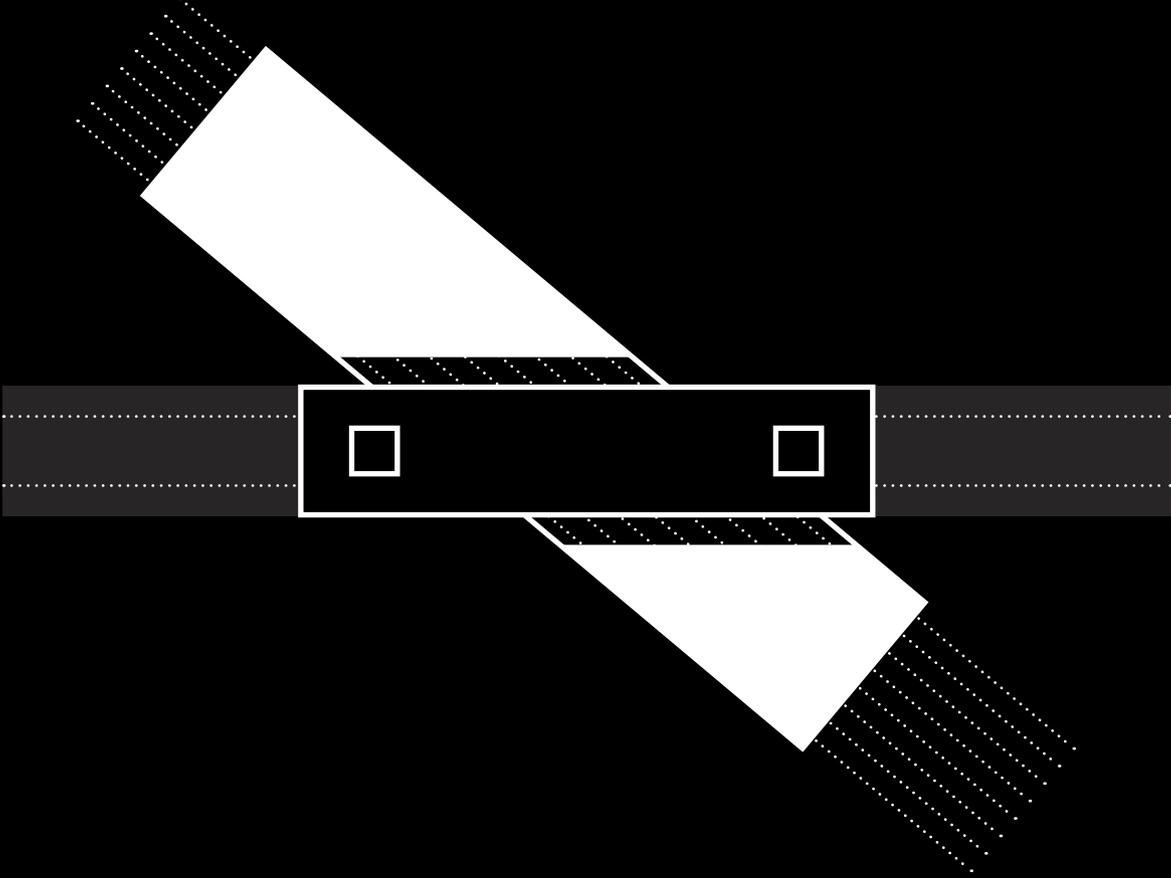
PROGRAM COMPARISON

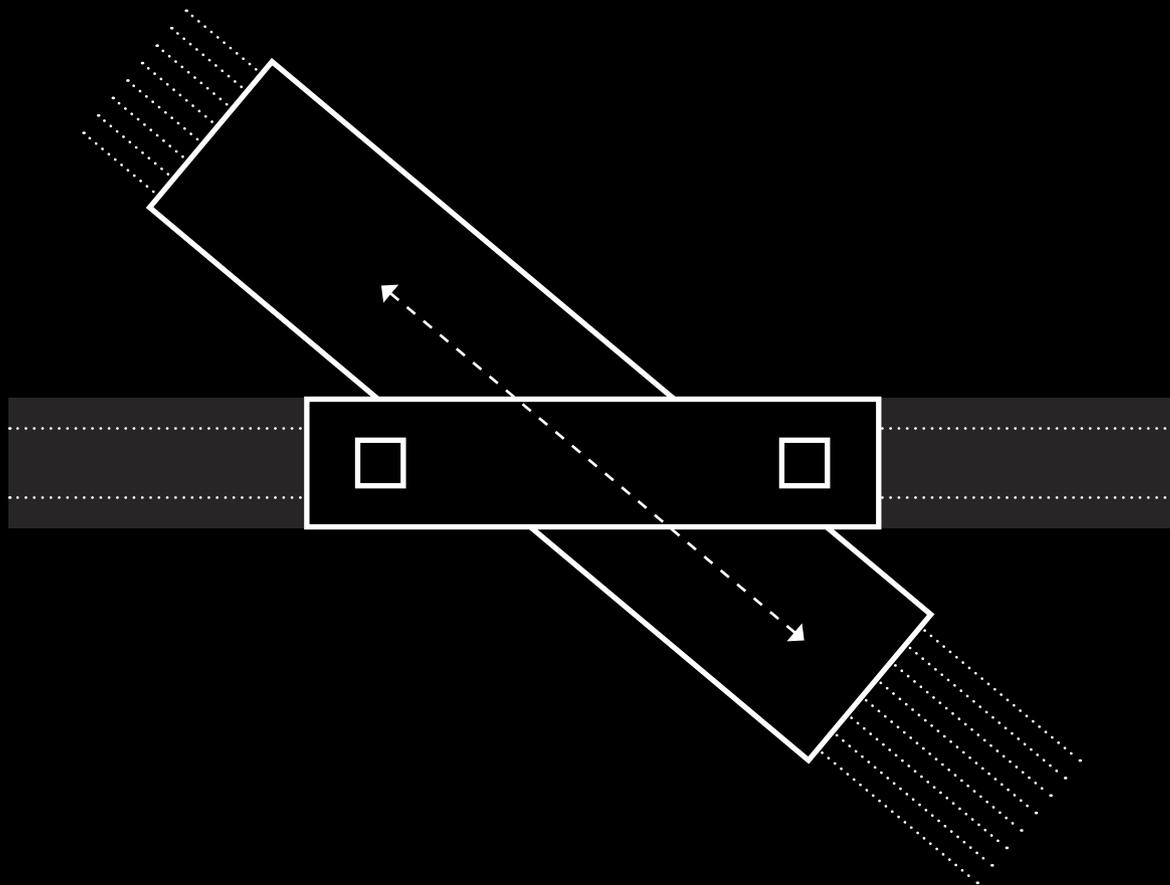


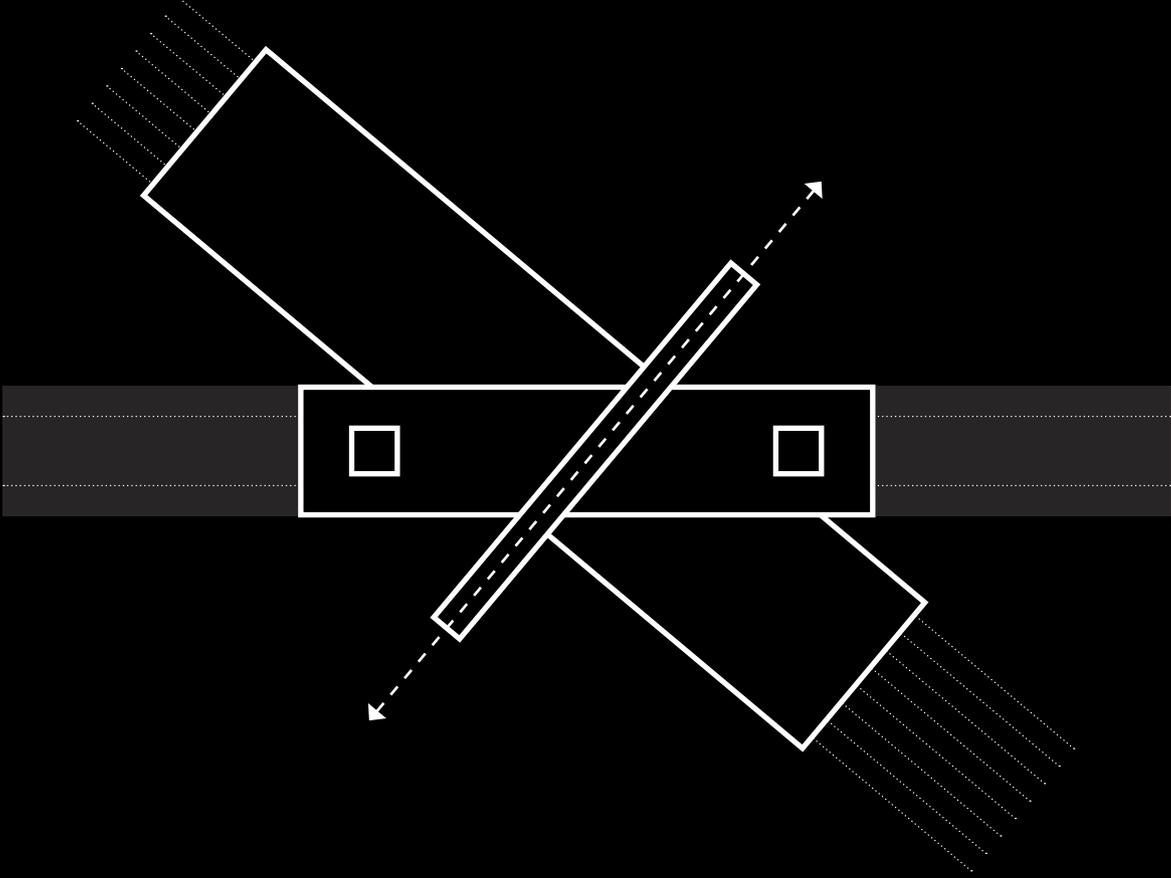


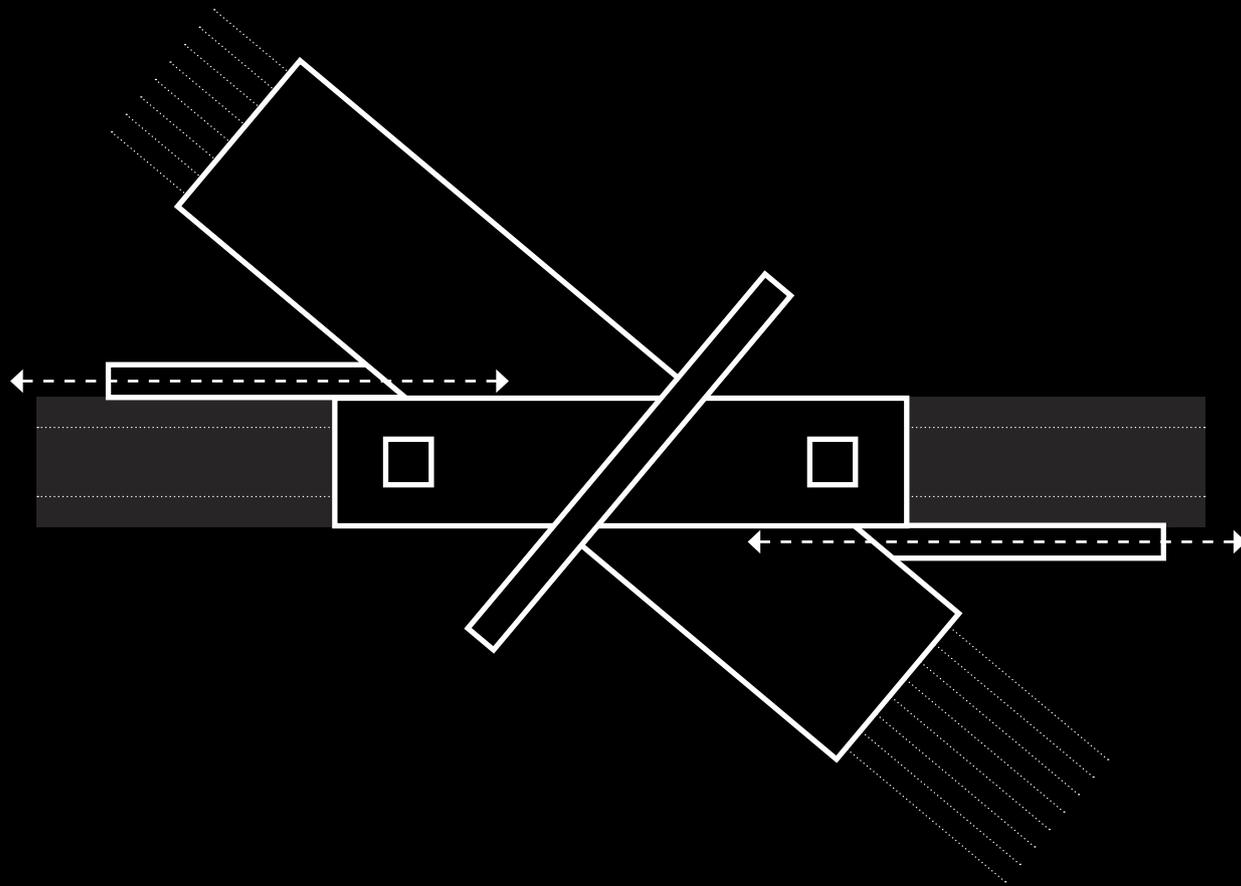
CONCEPT

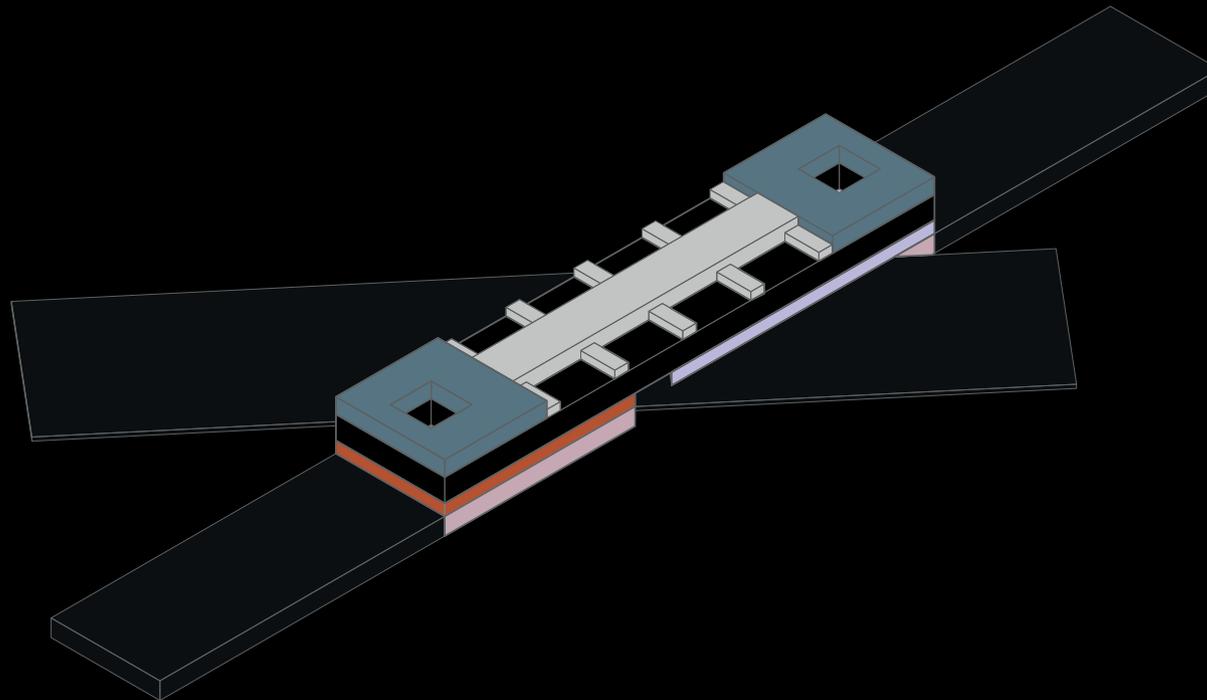


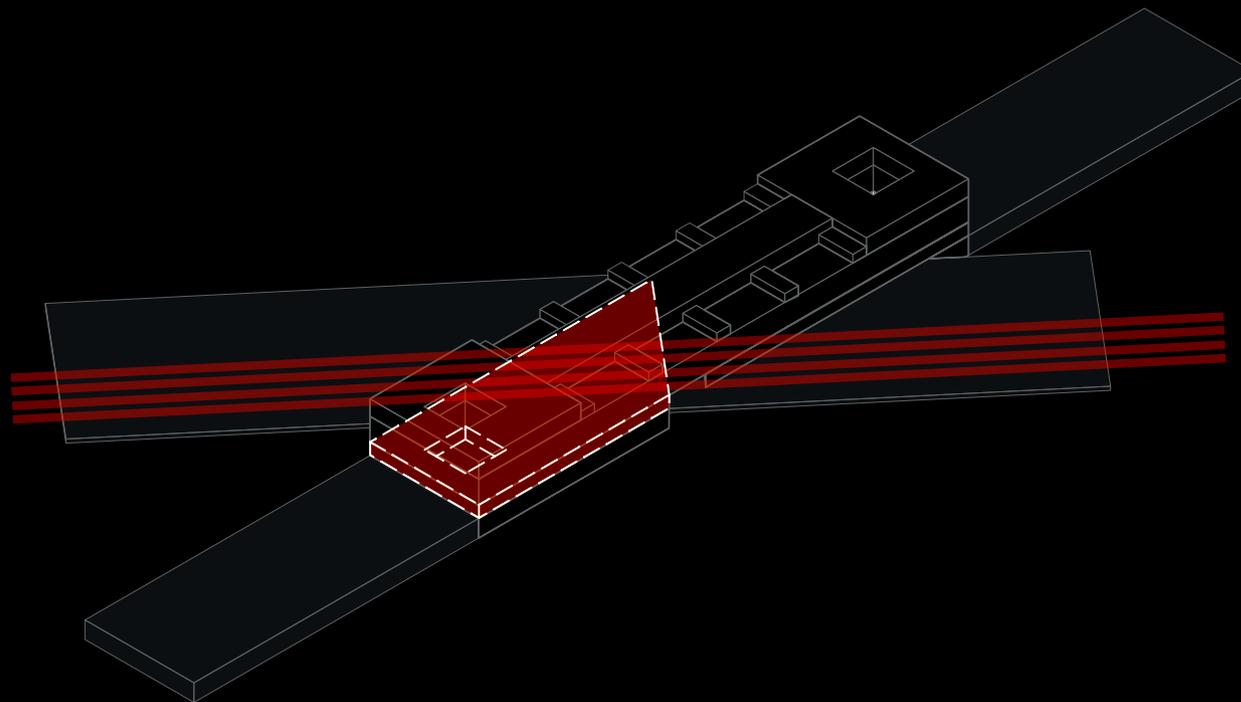


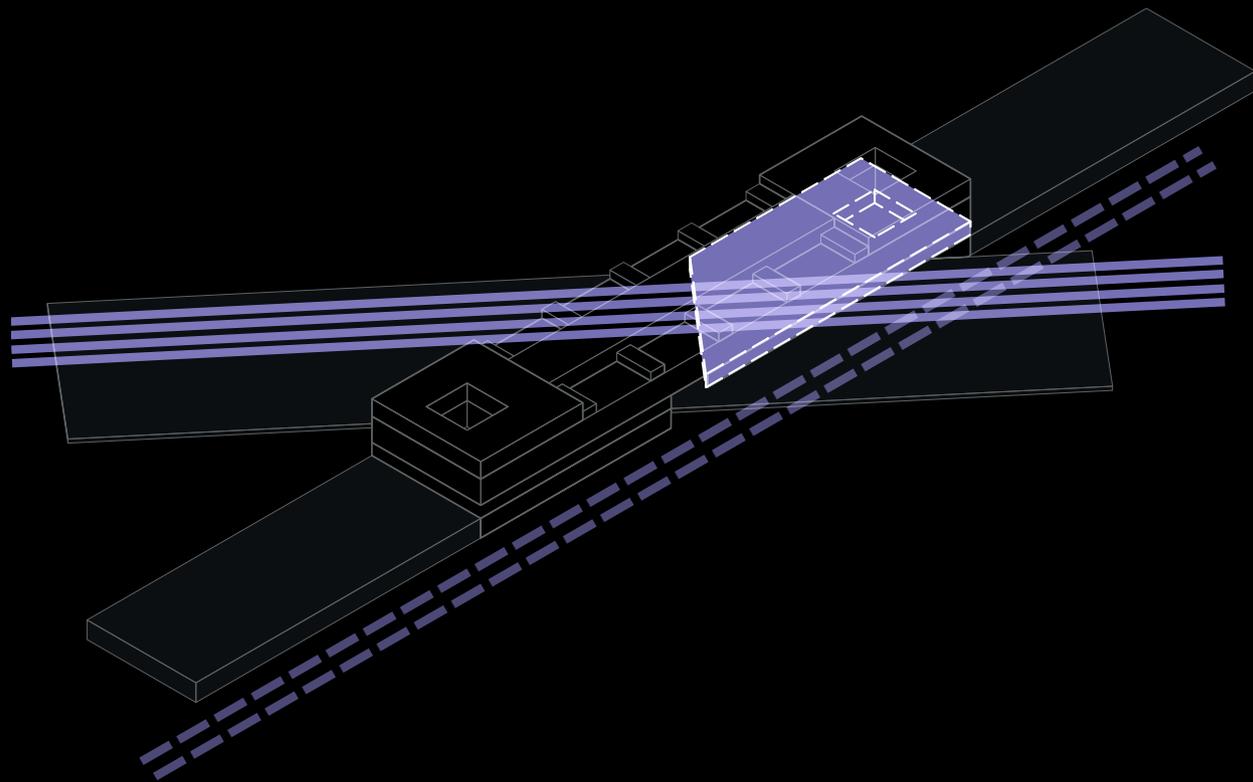


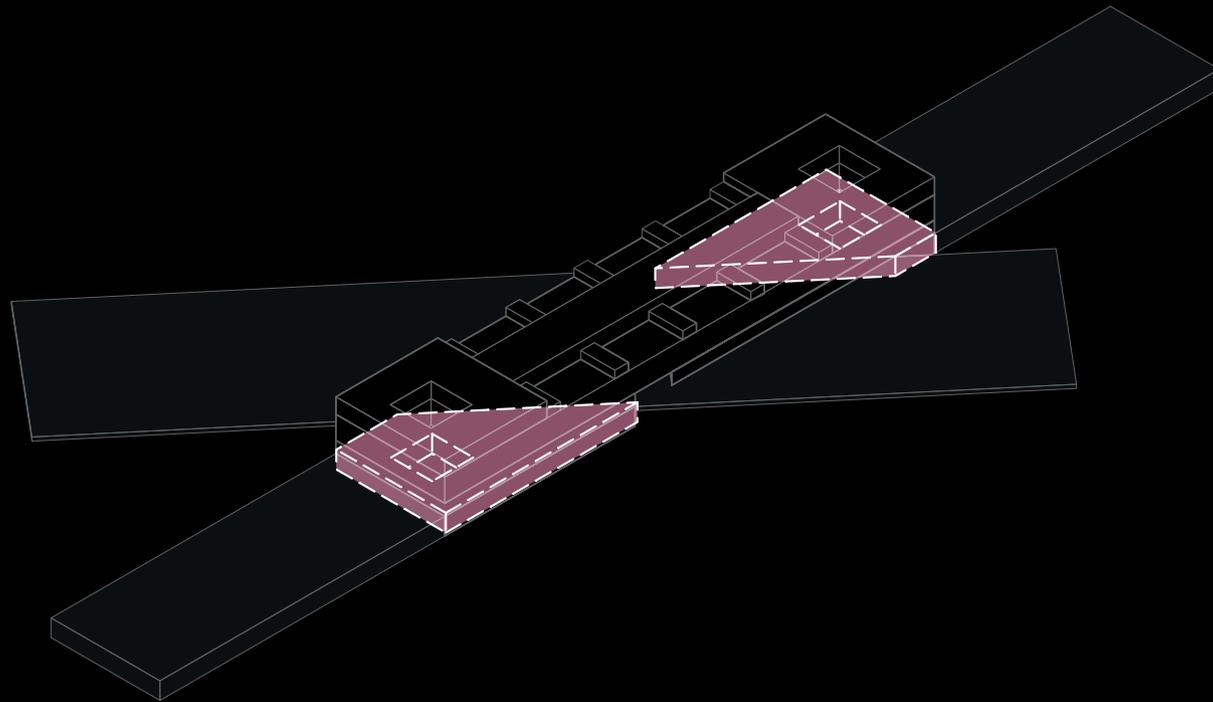


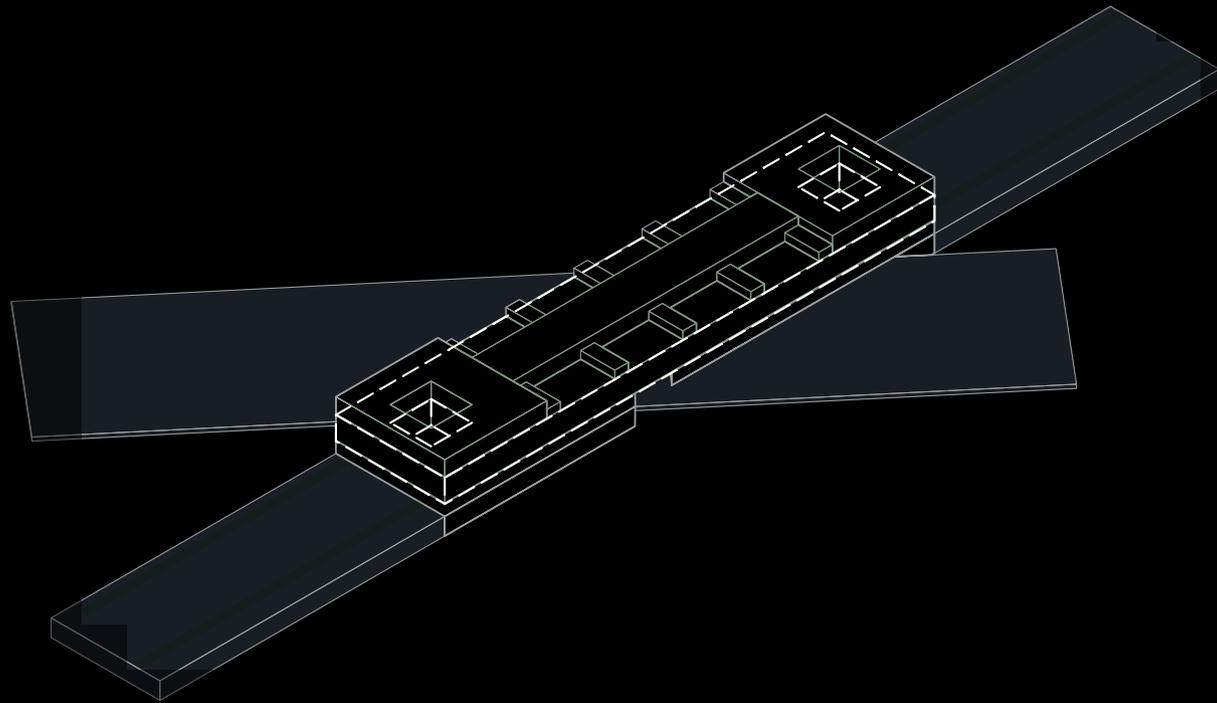


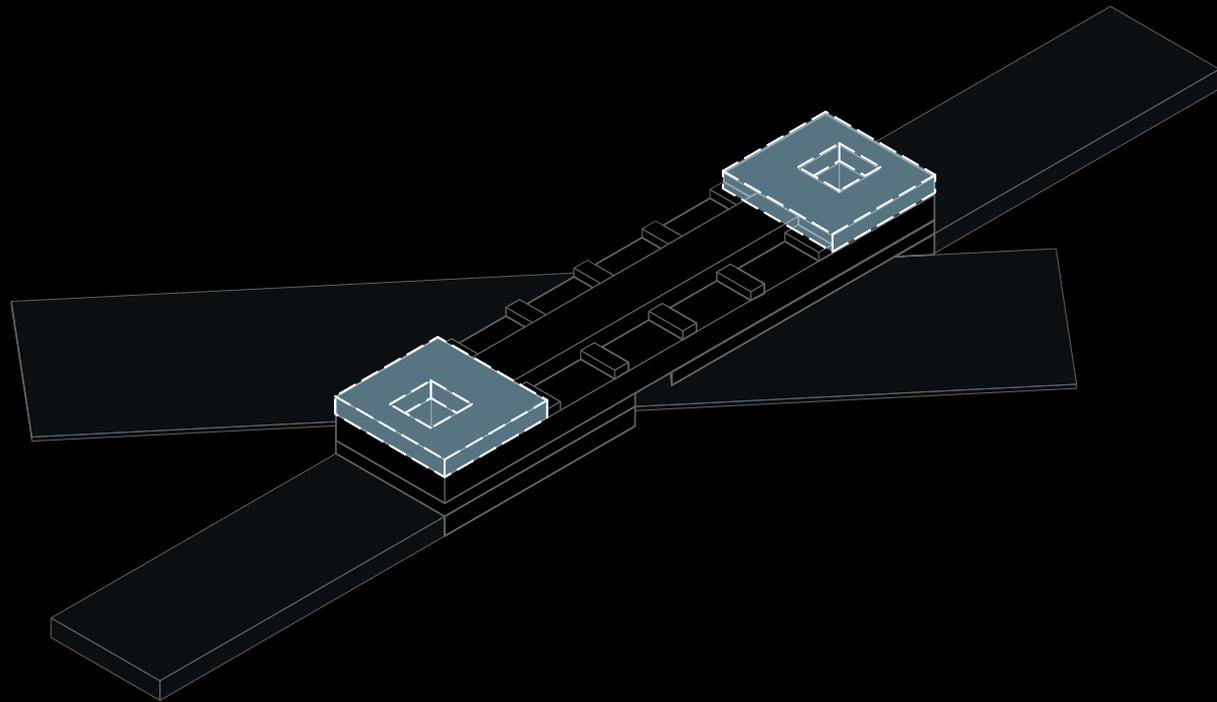


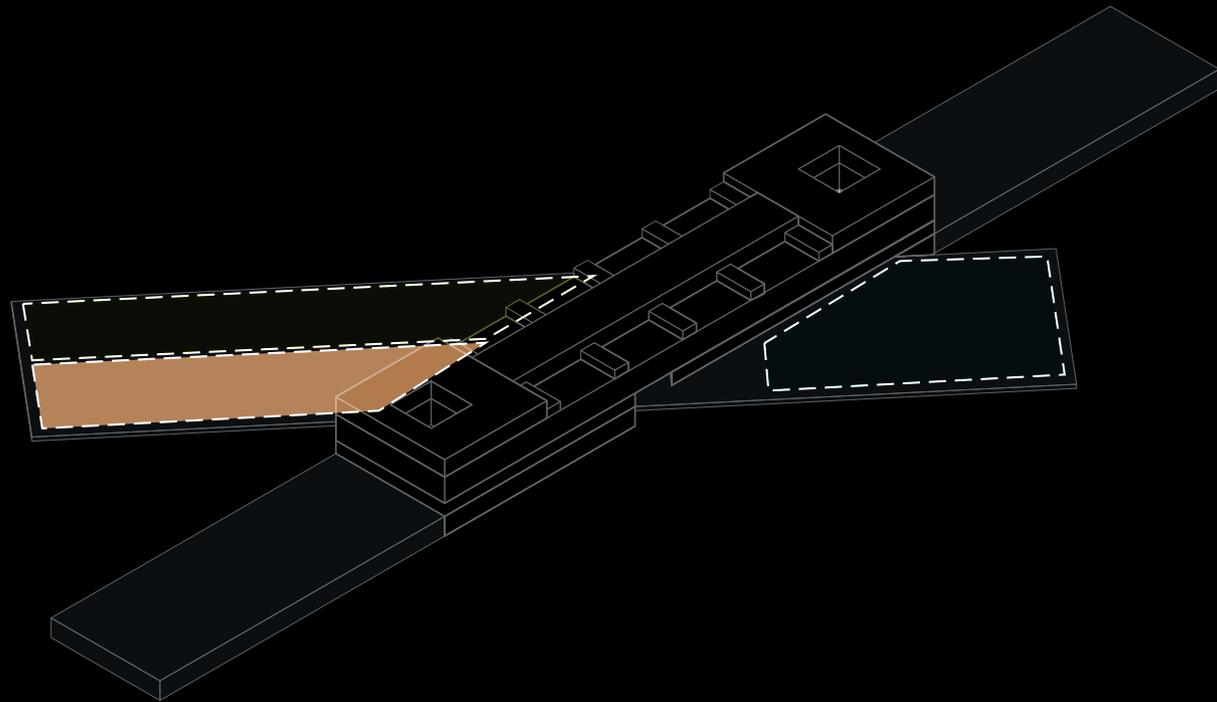










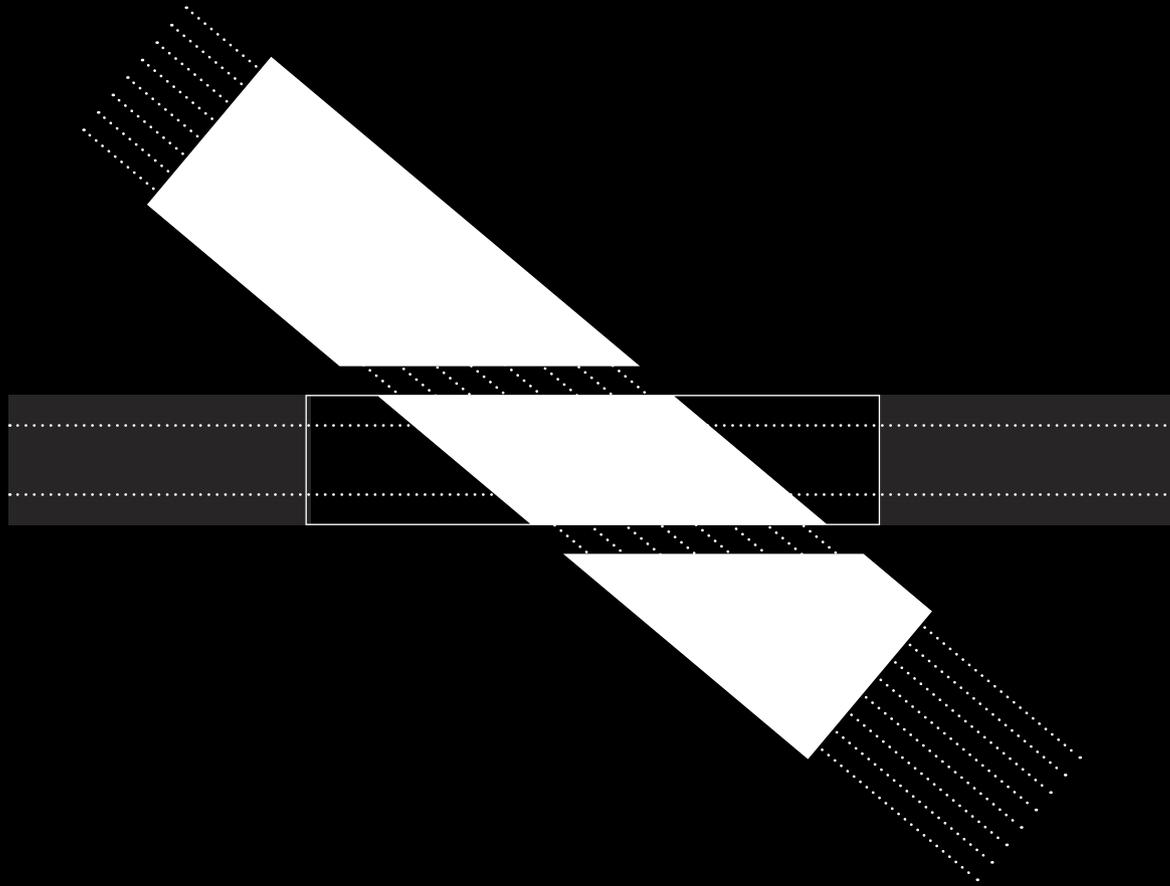




CONSTRUCTION

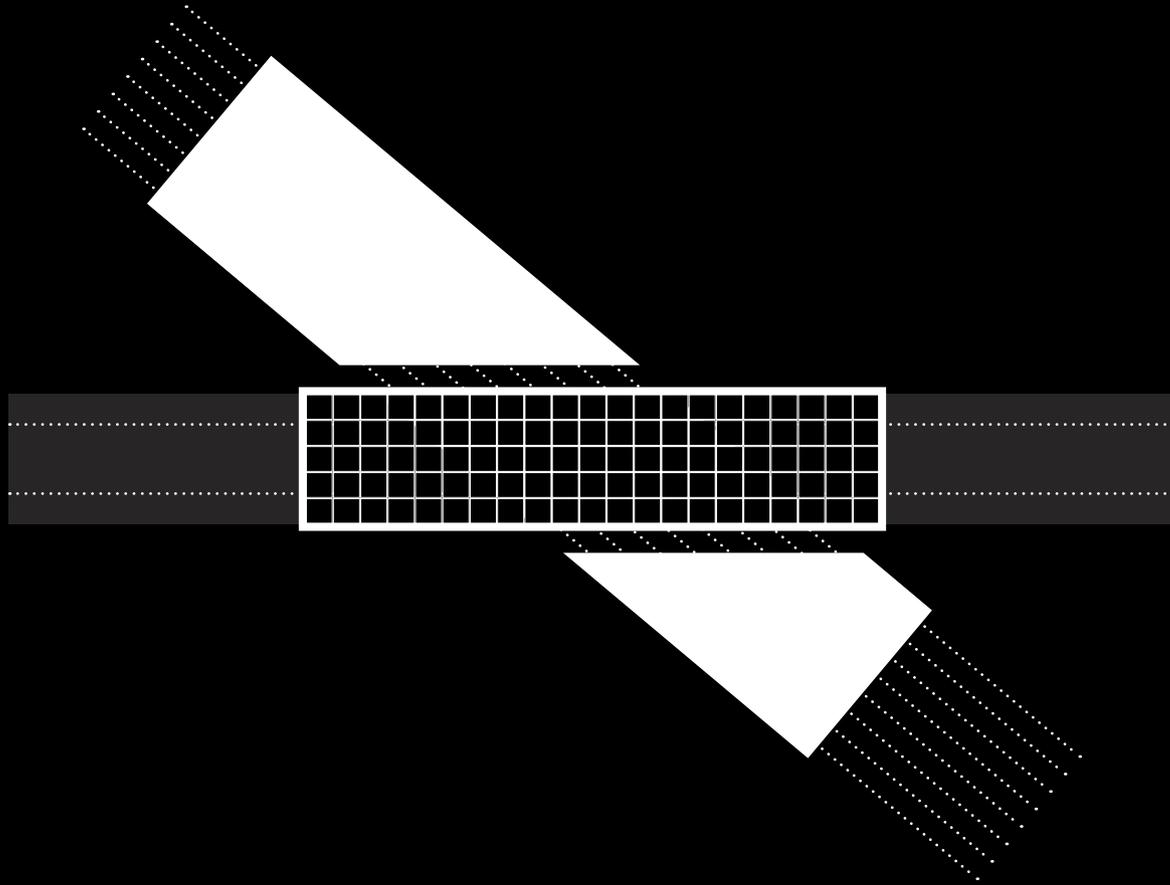
concept

CONSTRUCTION



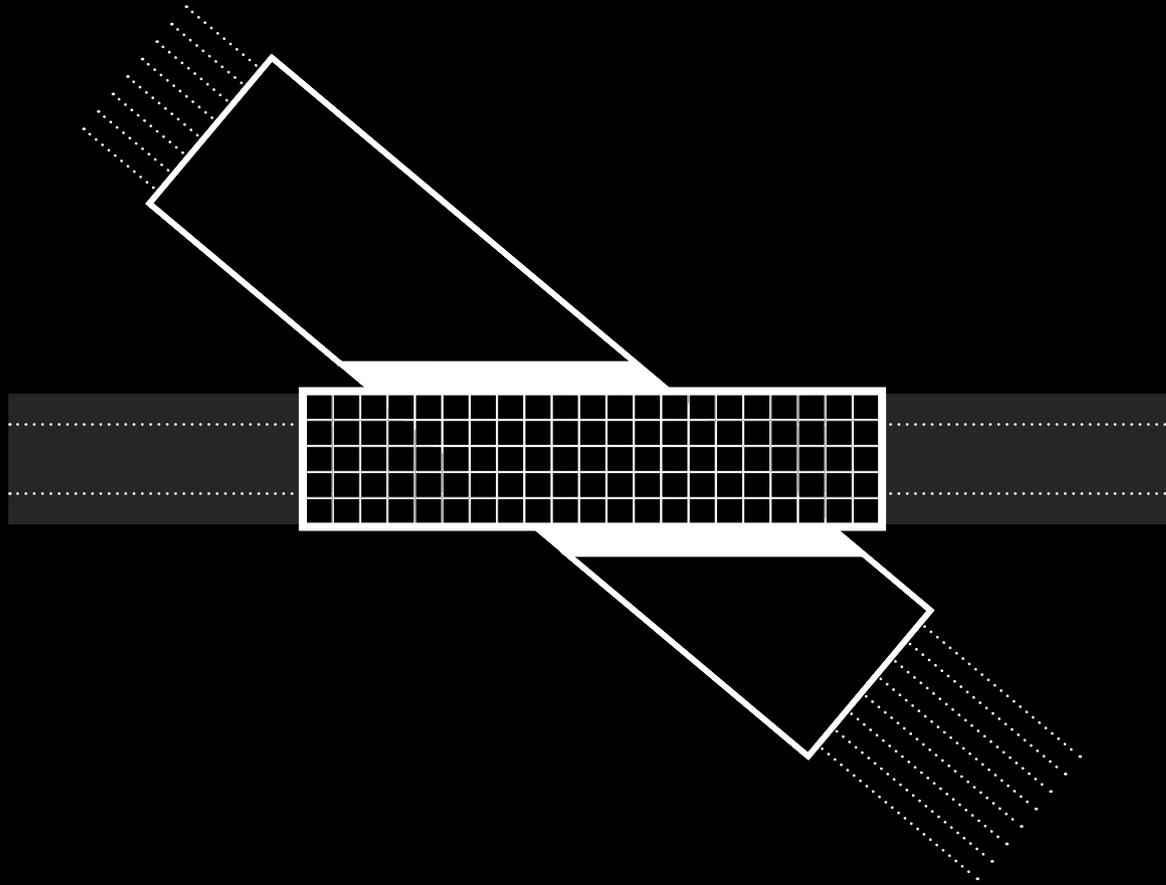
concept

CONSTRUCTION



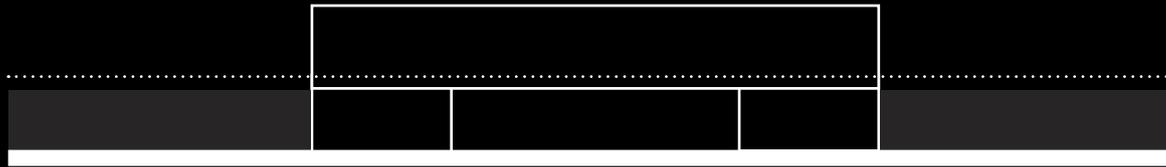
concept

CONSTRUCTION



concept

CONSTRUCTION



Section

concept

CONSTRUCTION



Section

concept

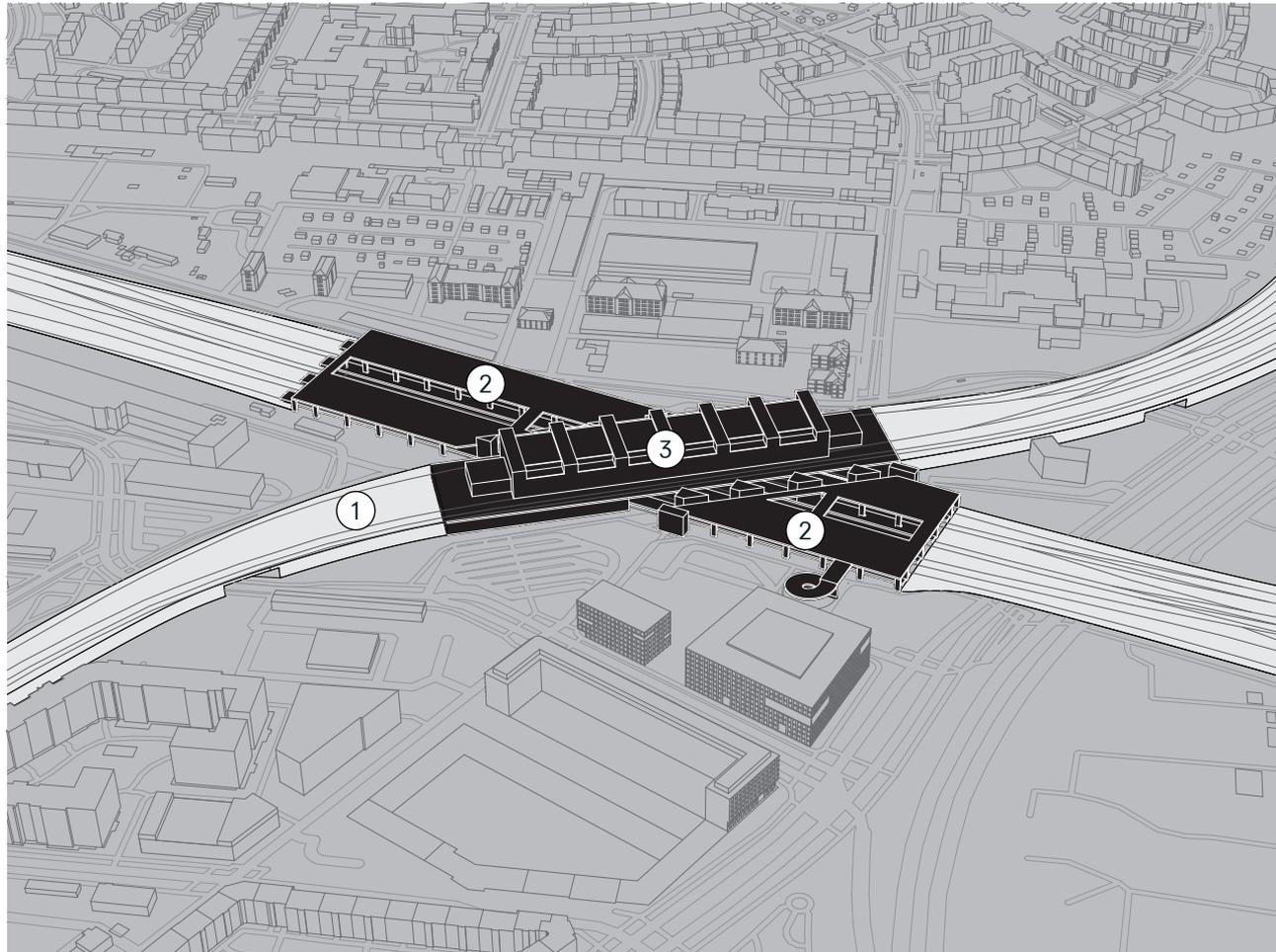
CONSTRUCTION



Section

Construction

BUILDING PHASES

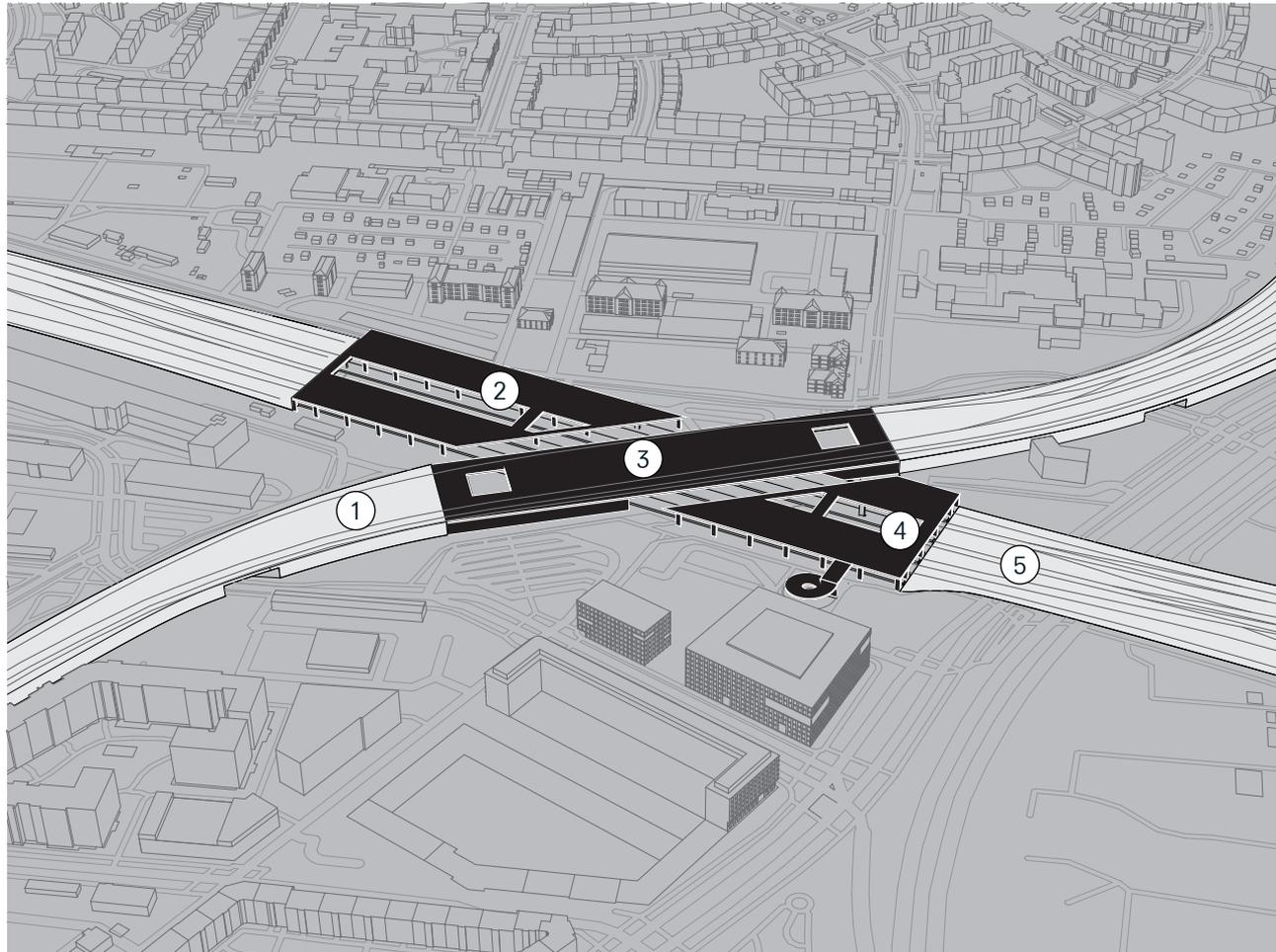


- 1. Ringbahn
- 2. Parking deck
- 3. Südkreuz station

Existing Station

Construction

BUILDING PHASE 1



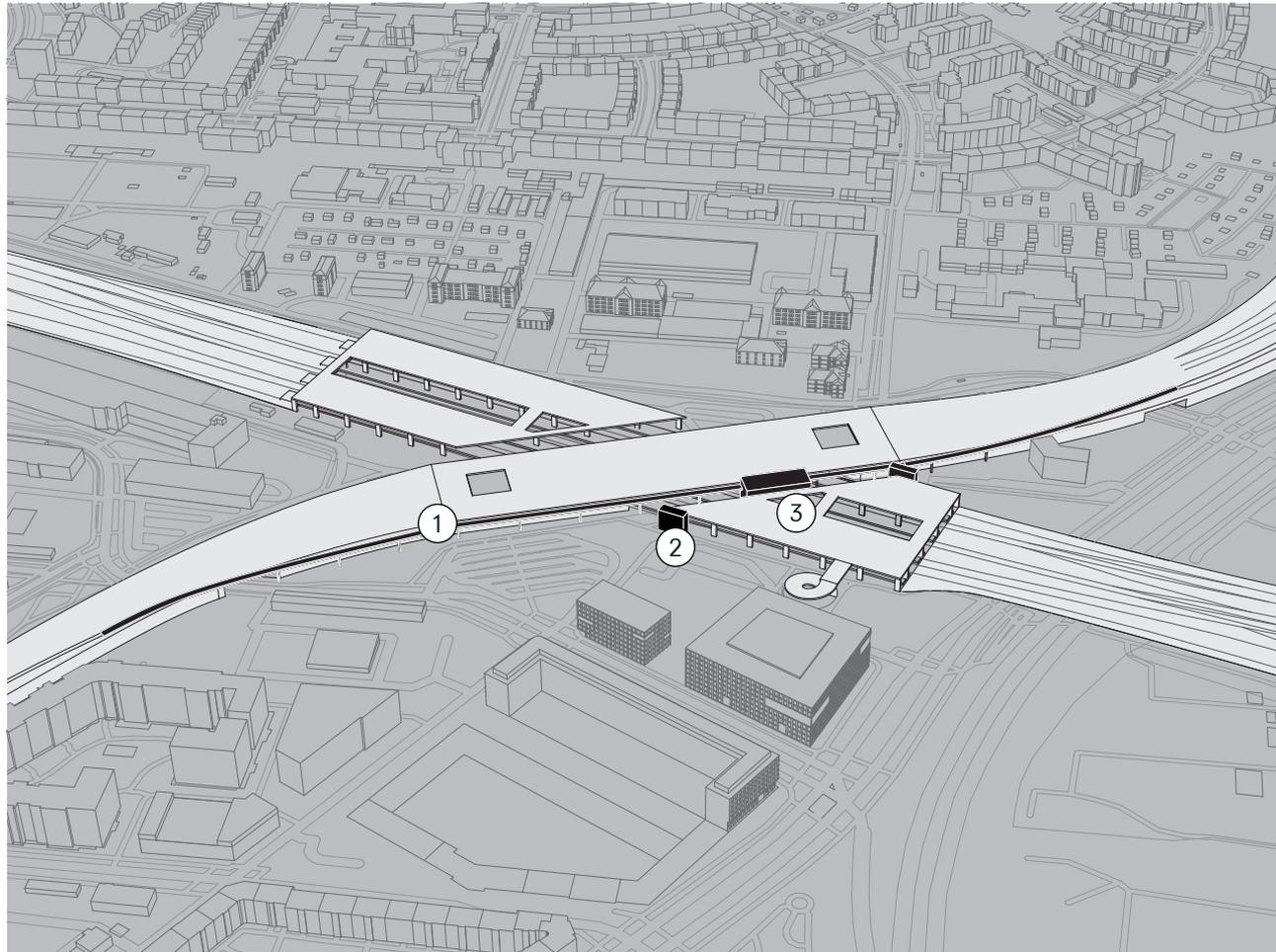
1. Ringbahn
2. Parking deck
3. Ringbahn bridge
4. Lower island platform 4x
5. Domestic rail tracks

Deconstruction

Disassembly of station building. Elements that remain consist of the Ringbahn bridge, parking decks, island platforms and rail infrastructure.

Construction

BUILDING PHASE 2



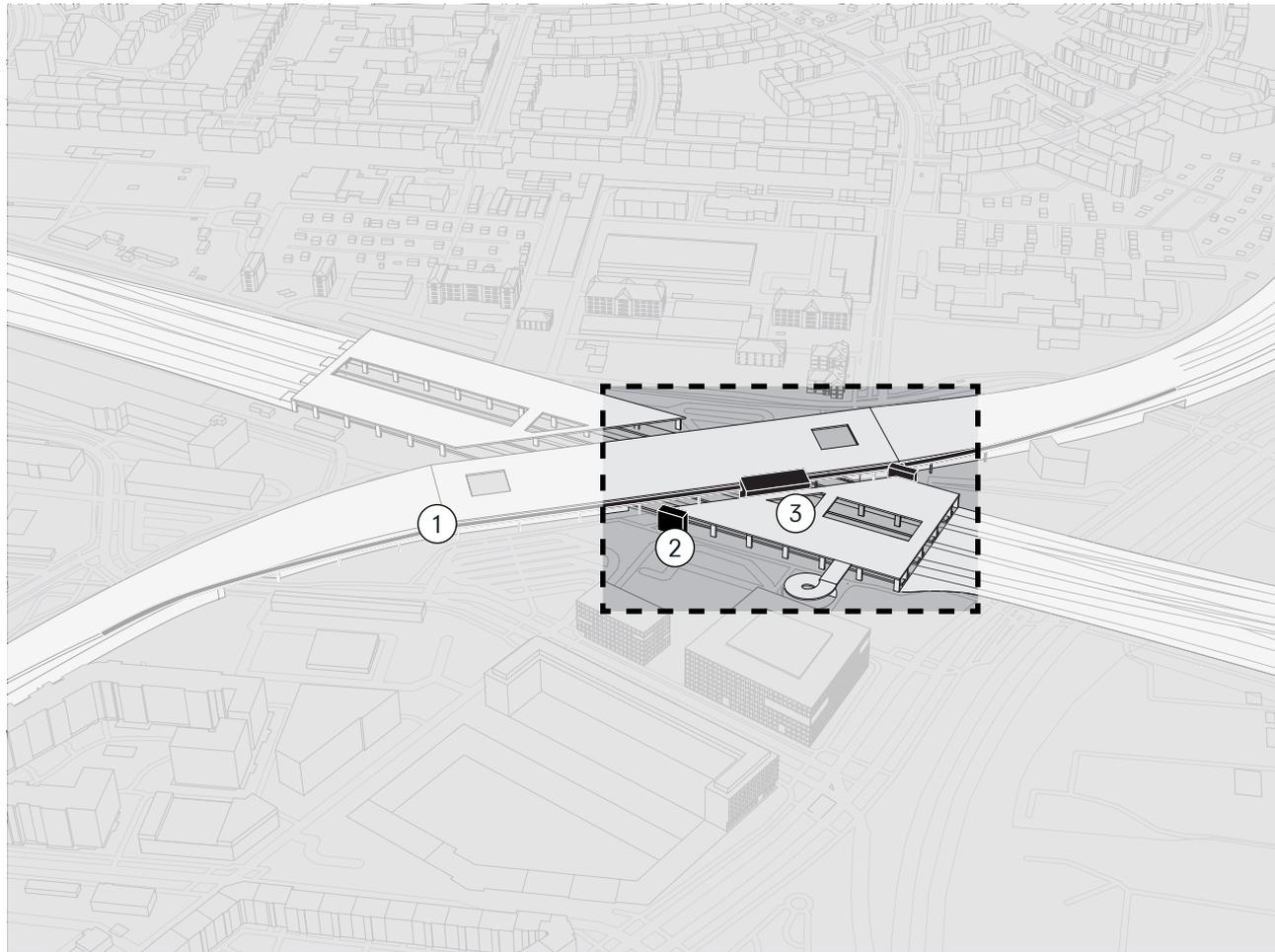
1. Temporary ringbahn bridge
2. Existing stairwell
3. Temporary station

Reroute Ringbahn

A temporary station and bridge are constructed to continue the rail traffic.

Construction

BUILDING PHASE 2



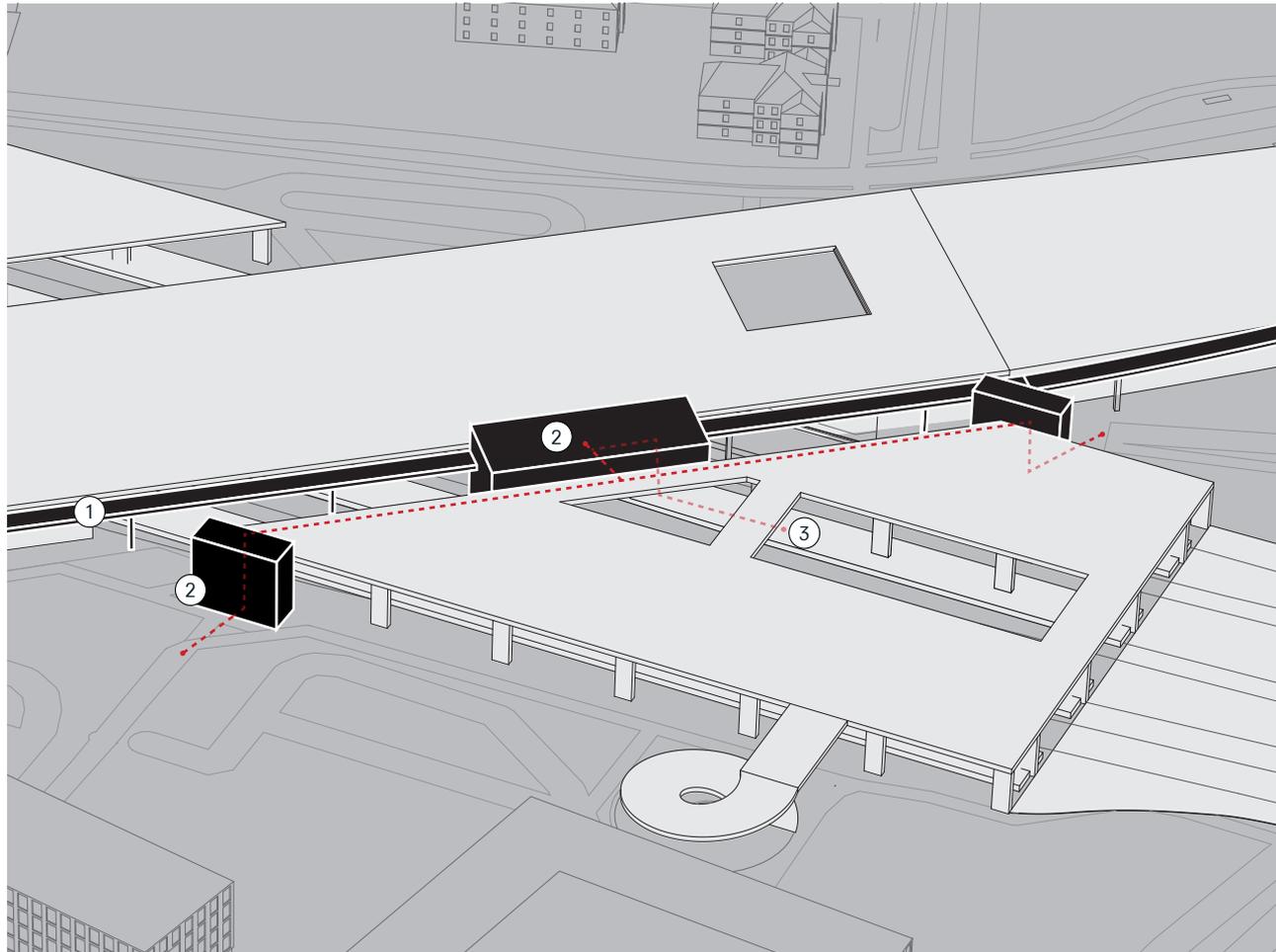
1. Temporary ringbahn bridge
2. Existing stairwell
3. Temporary station

Reroute Ringbahn

A temporary station and bridge are constructed to continue the rail traffic.

Construction

BUILDING PHASE 2

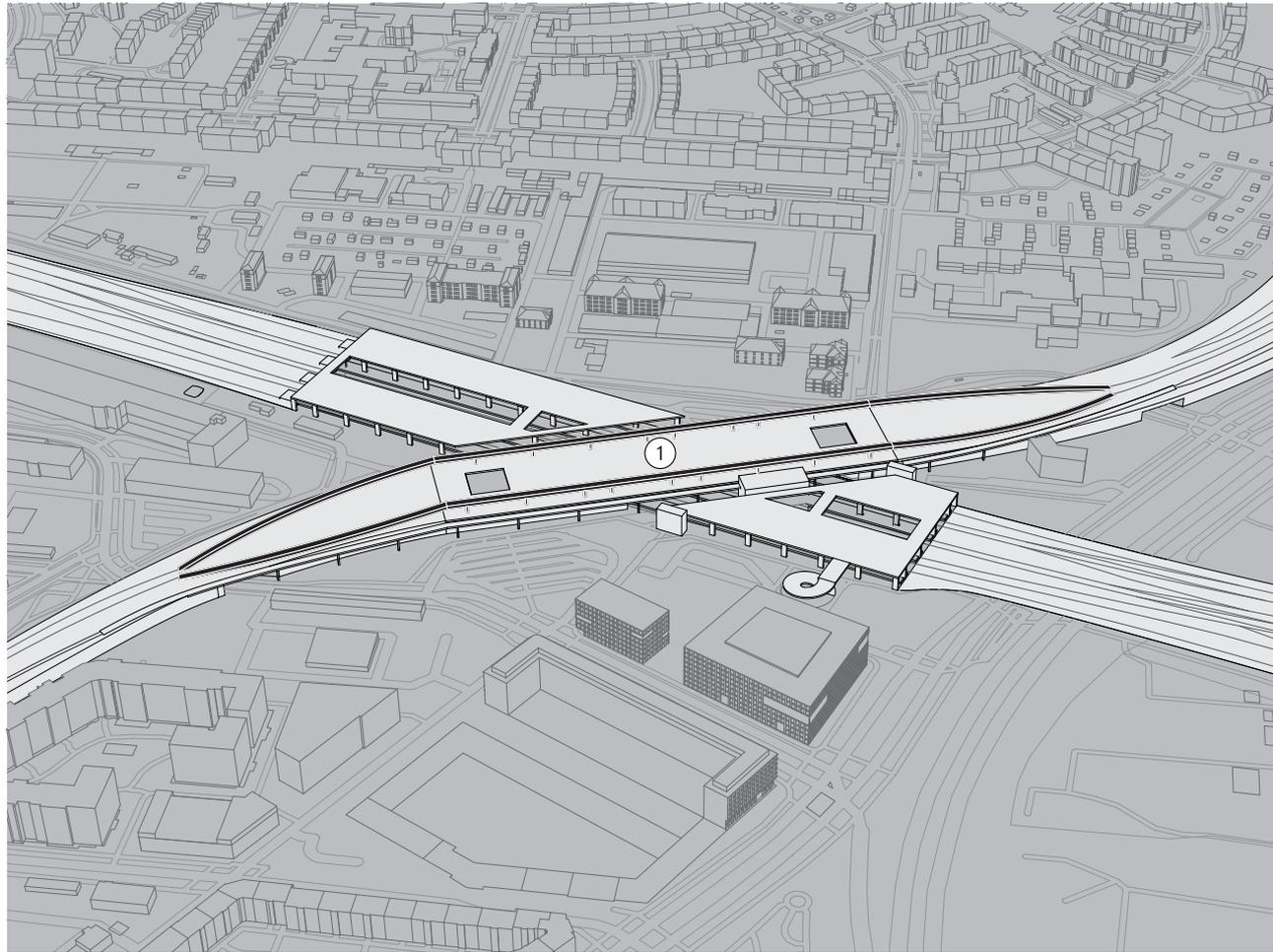


1. Temporary ringbahn tracks
2. S-Bahn platforms
3. Domestic platforms

Temporary station

The existing parking decks and stairwells form a passage leading to the temporary station.

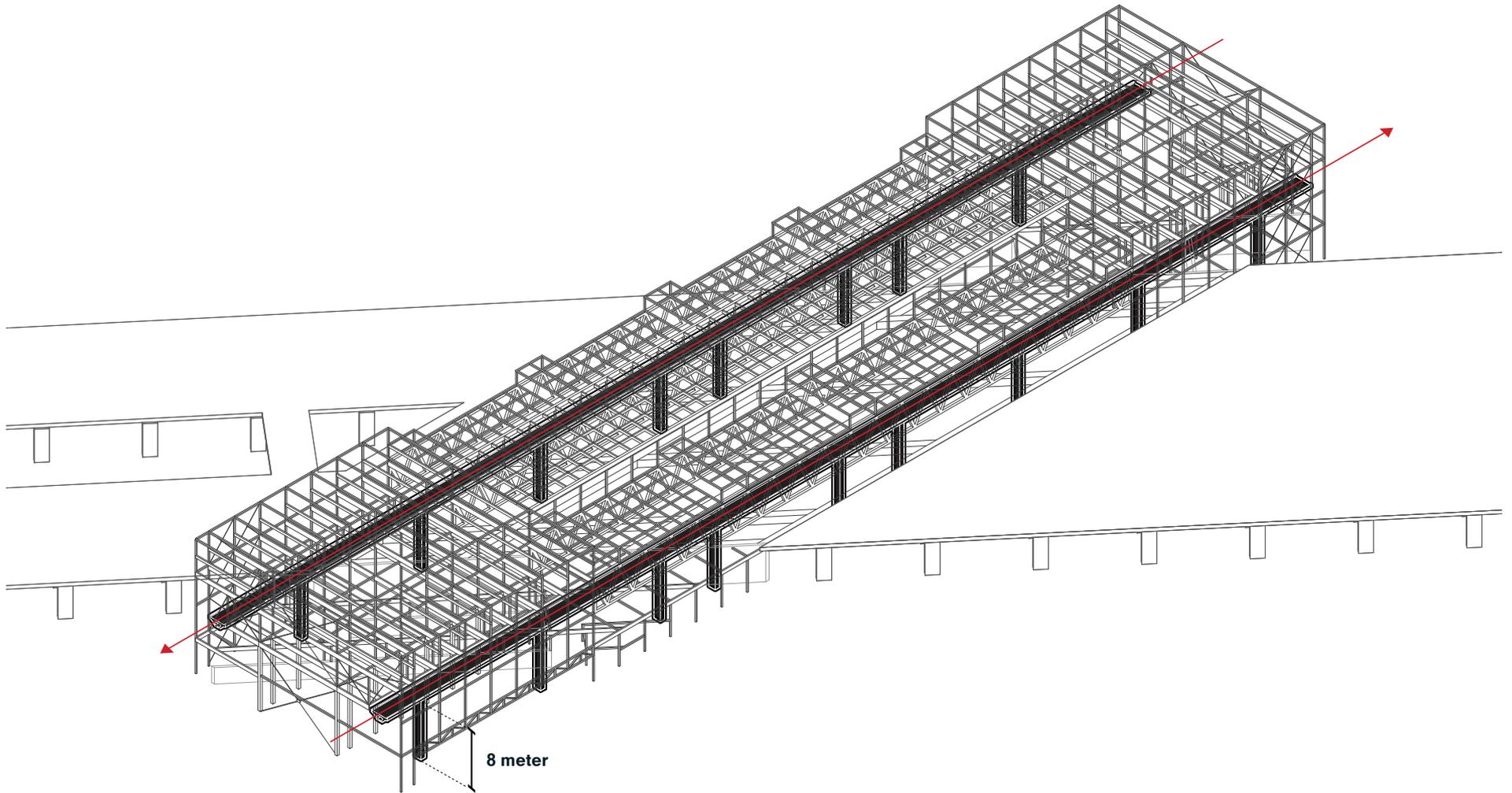
Construction
BUILDING PHASE 3



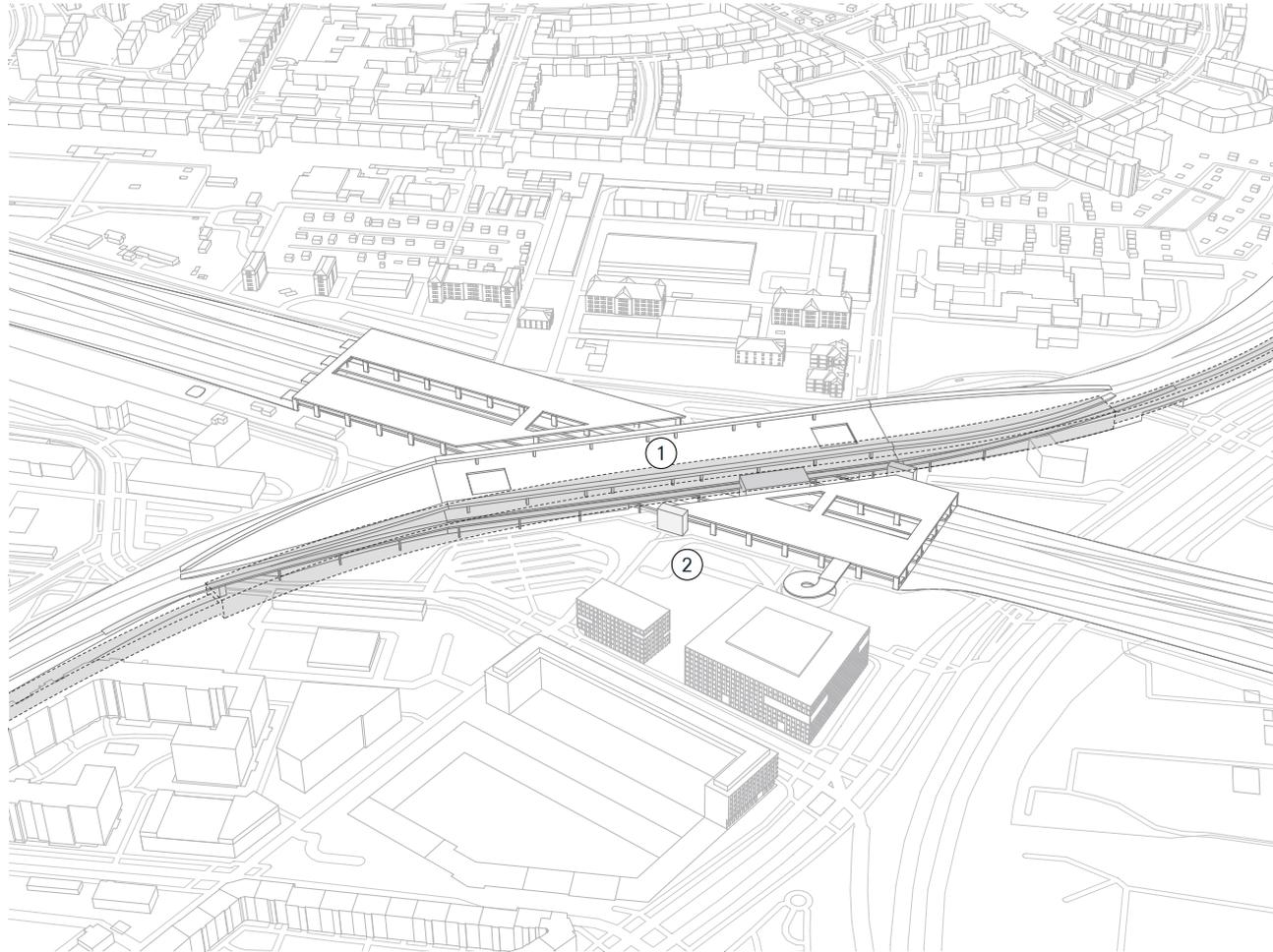
1. Raised S-bahn tracks

Construction ringbahn bridge

Construction
BUILDING PHASE 3

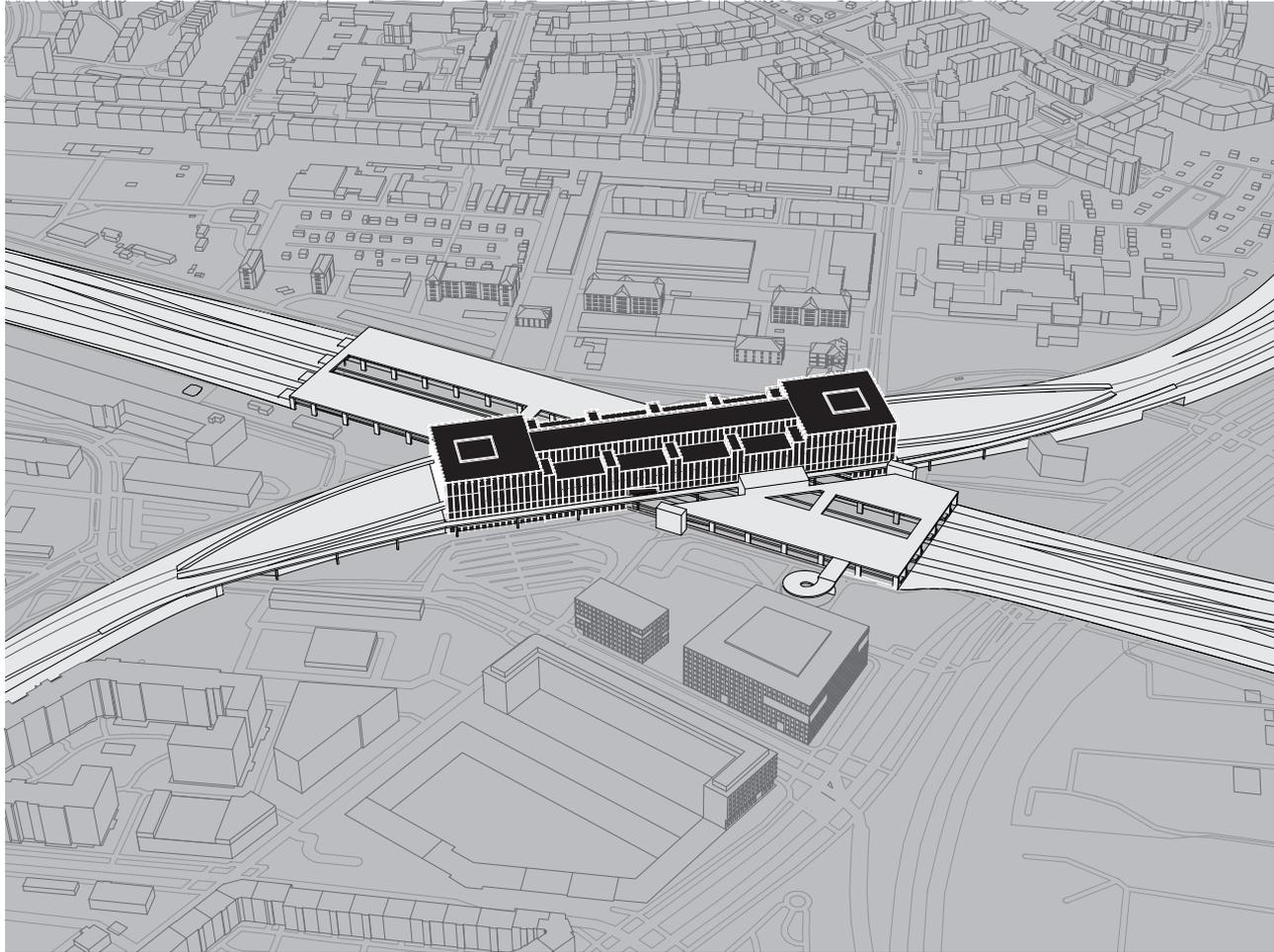


Construction
BUILDING PHASE 3



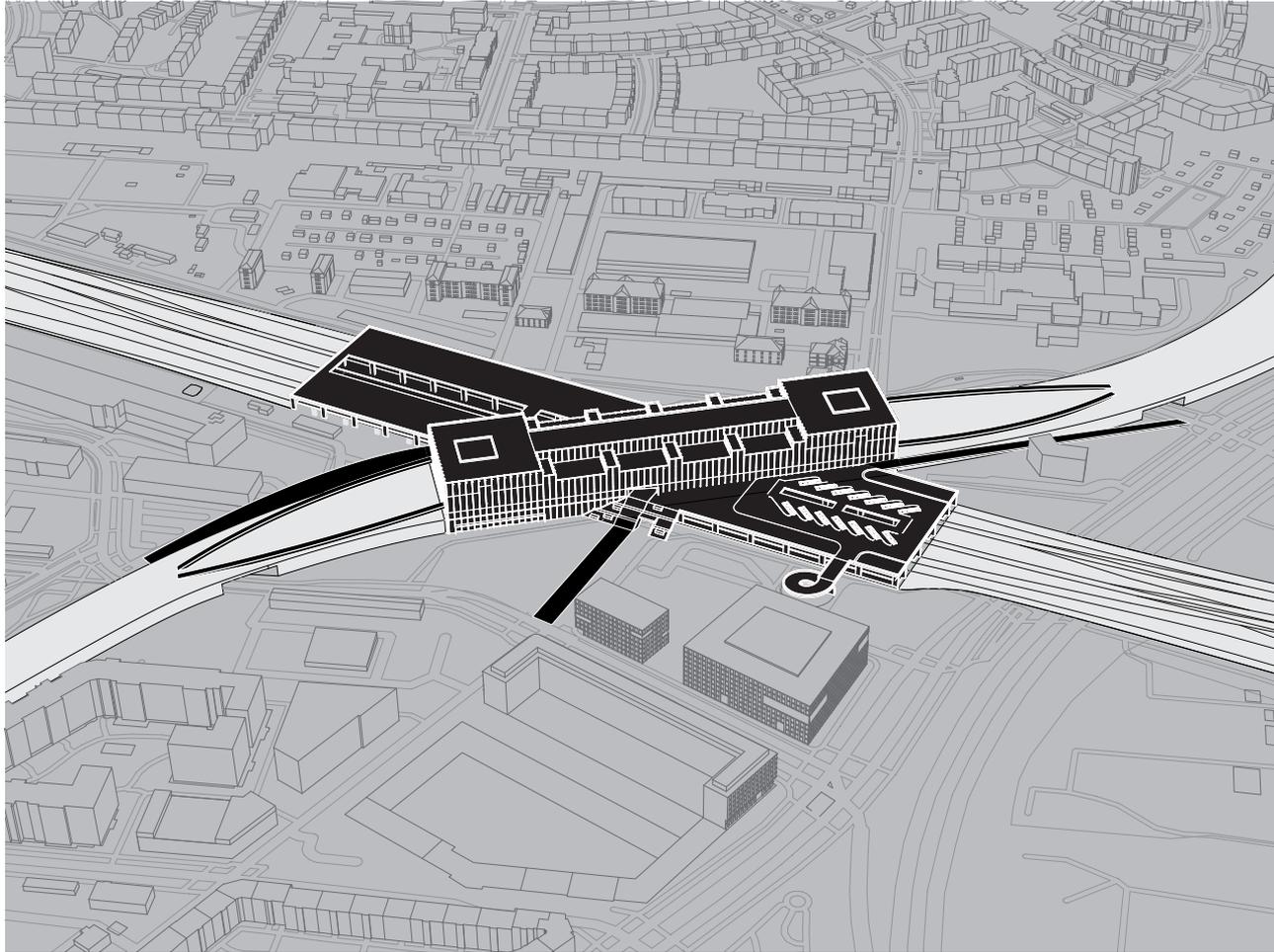
Construction Underground tunnel

Construction
BUILDING PHASE 4



Construction Südkreuz station

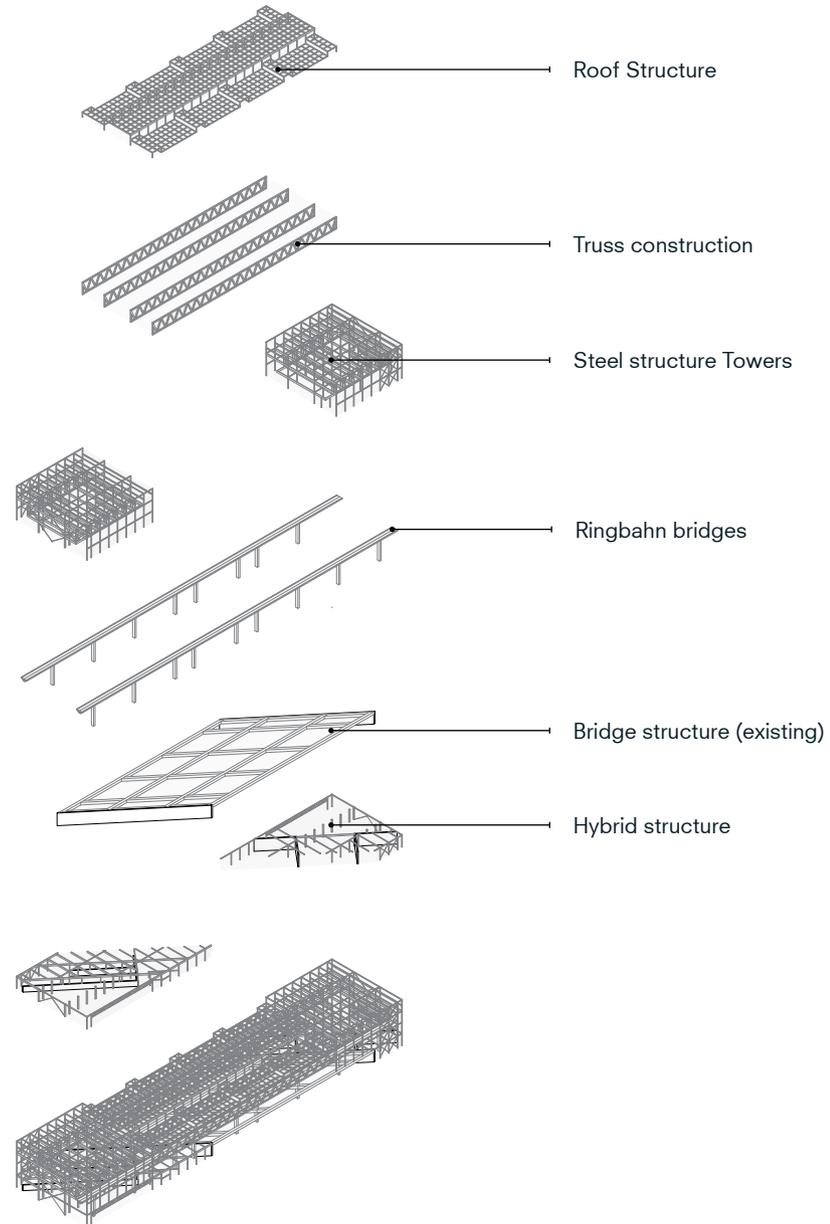
Construction
BUILDING PHASE 5



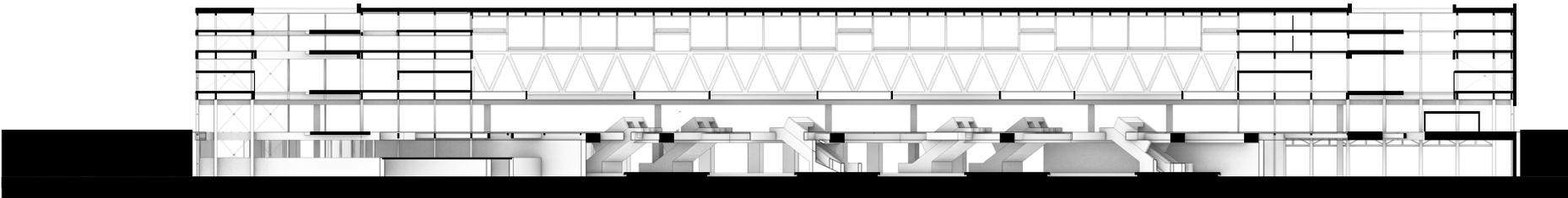
**Pedestrian bridge, bus bridge & parking deck
integration**

Construction

CONSTRUCTION AXO

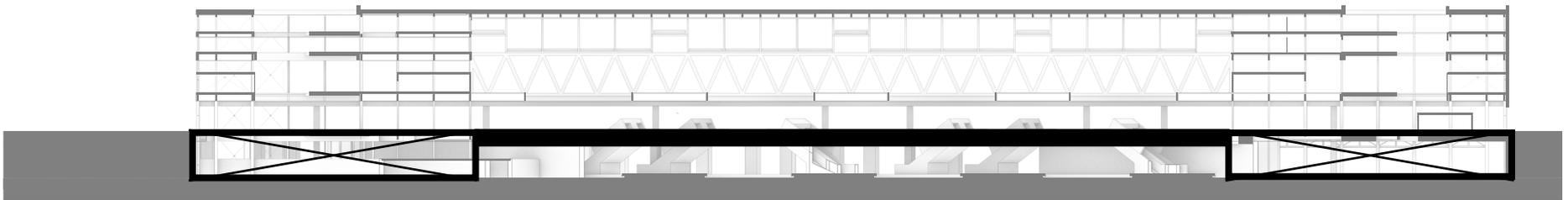


Construction
LONGTUDINAL SECTION

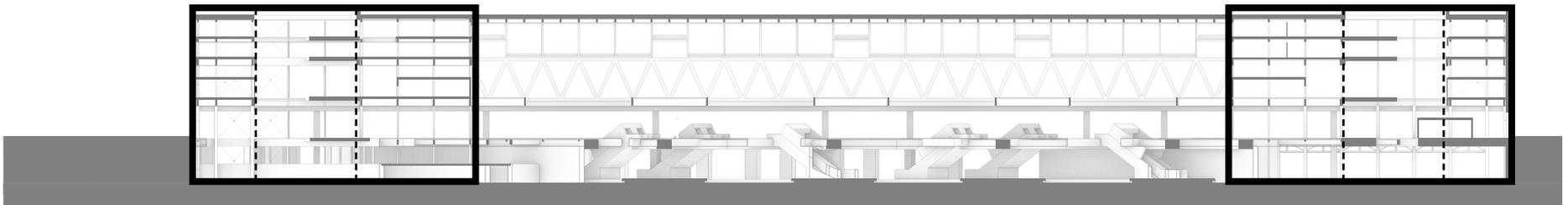


Construction

RE-USE OF EXISTING STRUCTURE

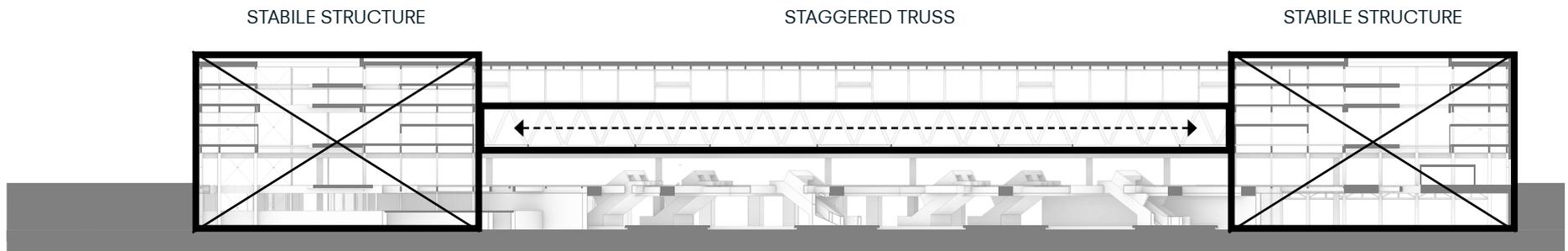


Construction
TWO TOWERS

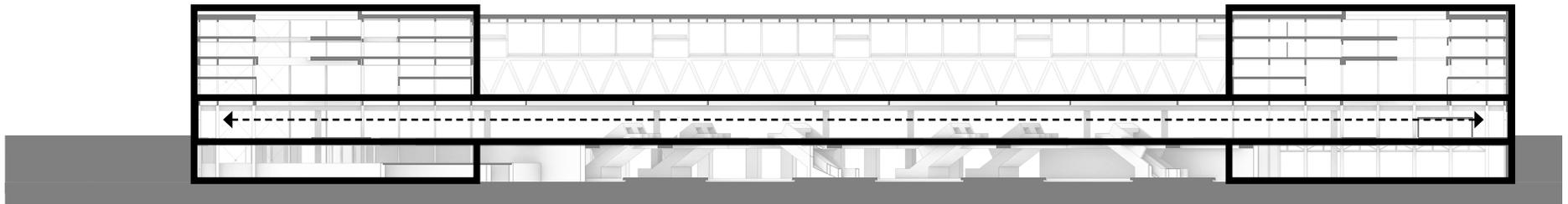


Construction

NEW BRIDGING STRUCTURE



OPEN FLOOR PLAN TRAIN STATIONS





concept

FACADES



Elevation

concept

FACADES



Elevation

concept

FACADES



Elevation

concept

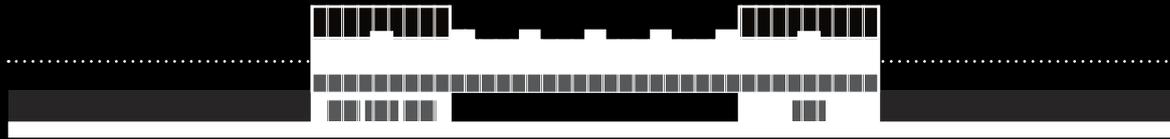
FACADES



Elevation

concept

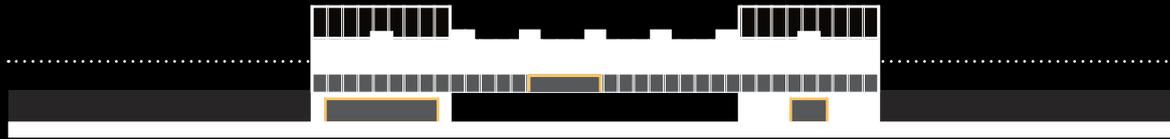
FACADES



Elevation

concept

FACADES

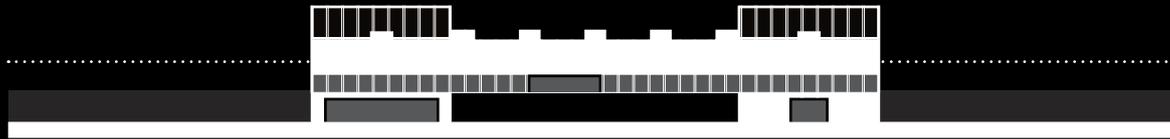


Elevation

concept
FACADES

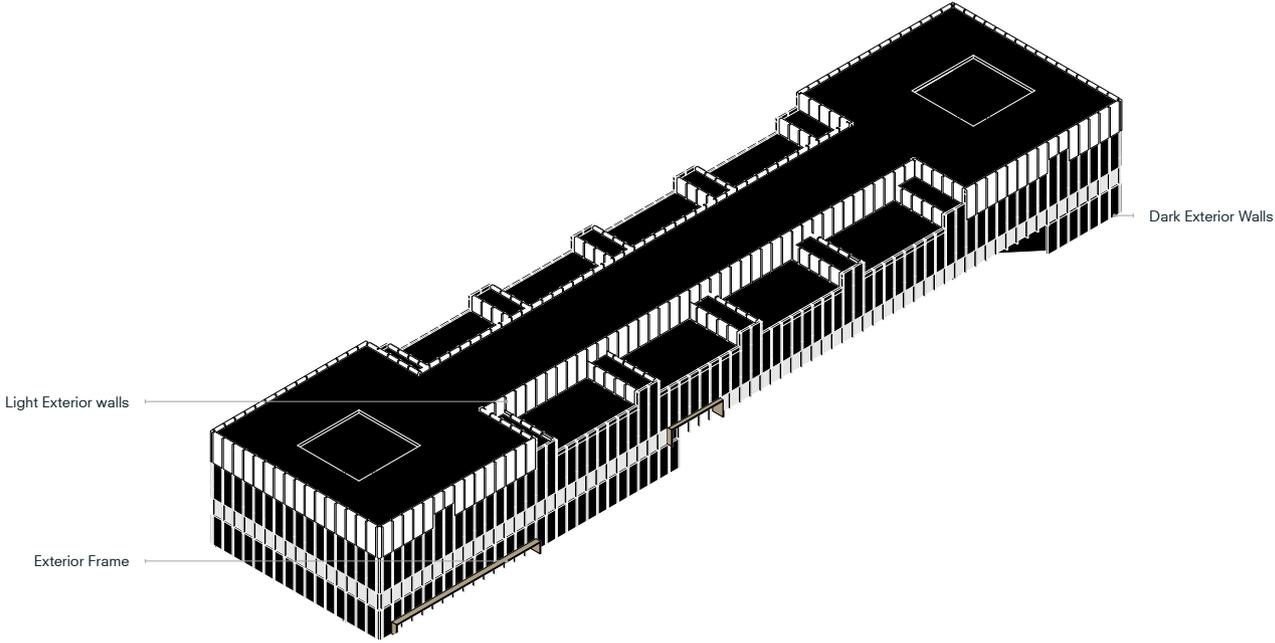


OLD



NEW

Facades
UNIFORM SHELL



Facades
READABLE FACADE



Facades **BY DAY**



Reference: Fieldwork, 9 Cremorne Street

Facades
BY NIGHT



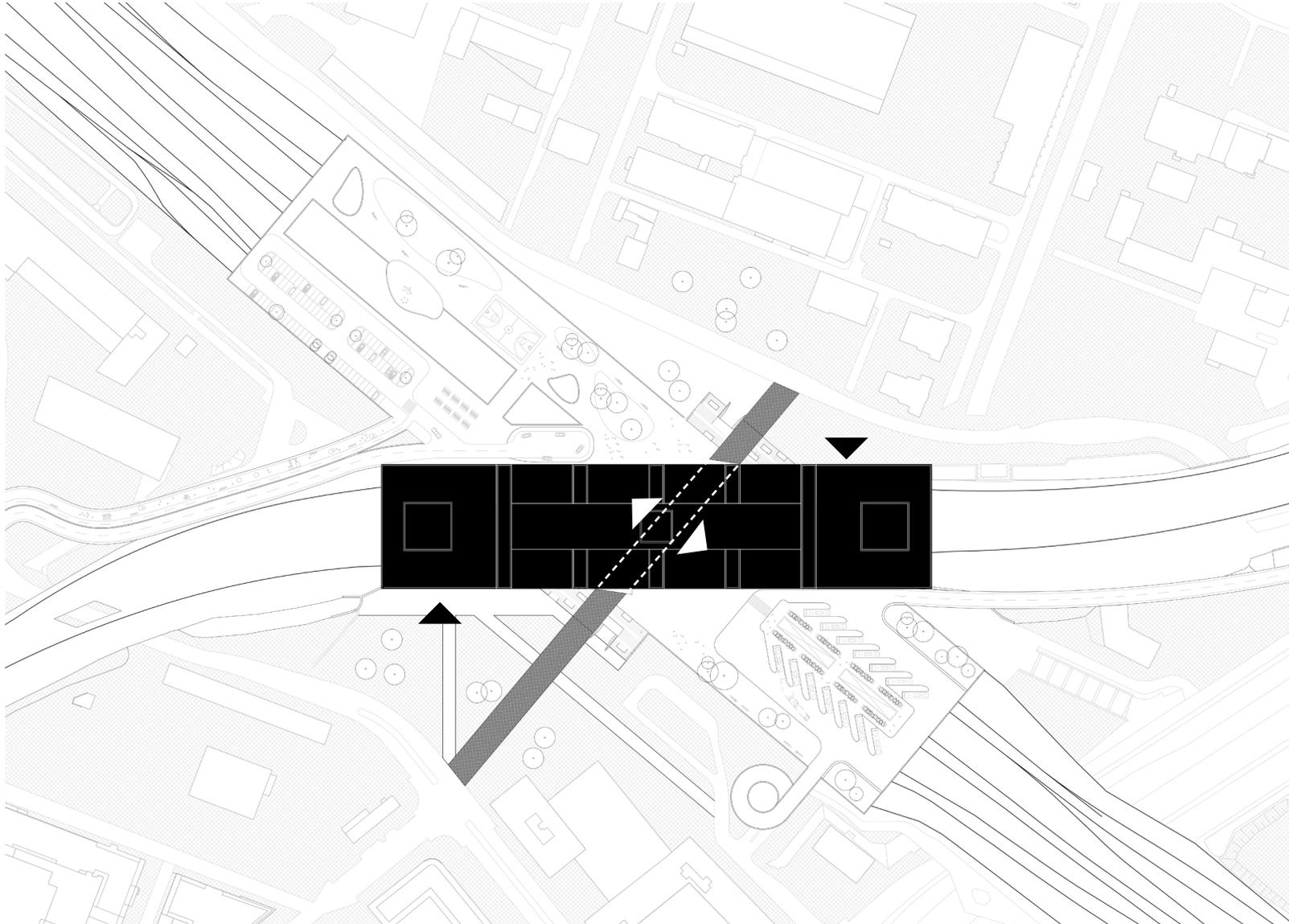
Reference: VINCENT PARREIRA - AAVP ARCHITECTURE,
TINO



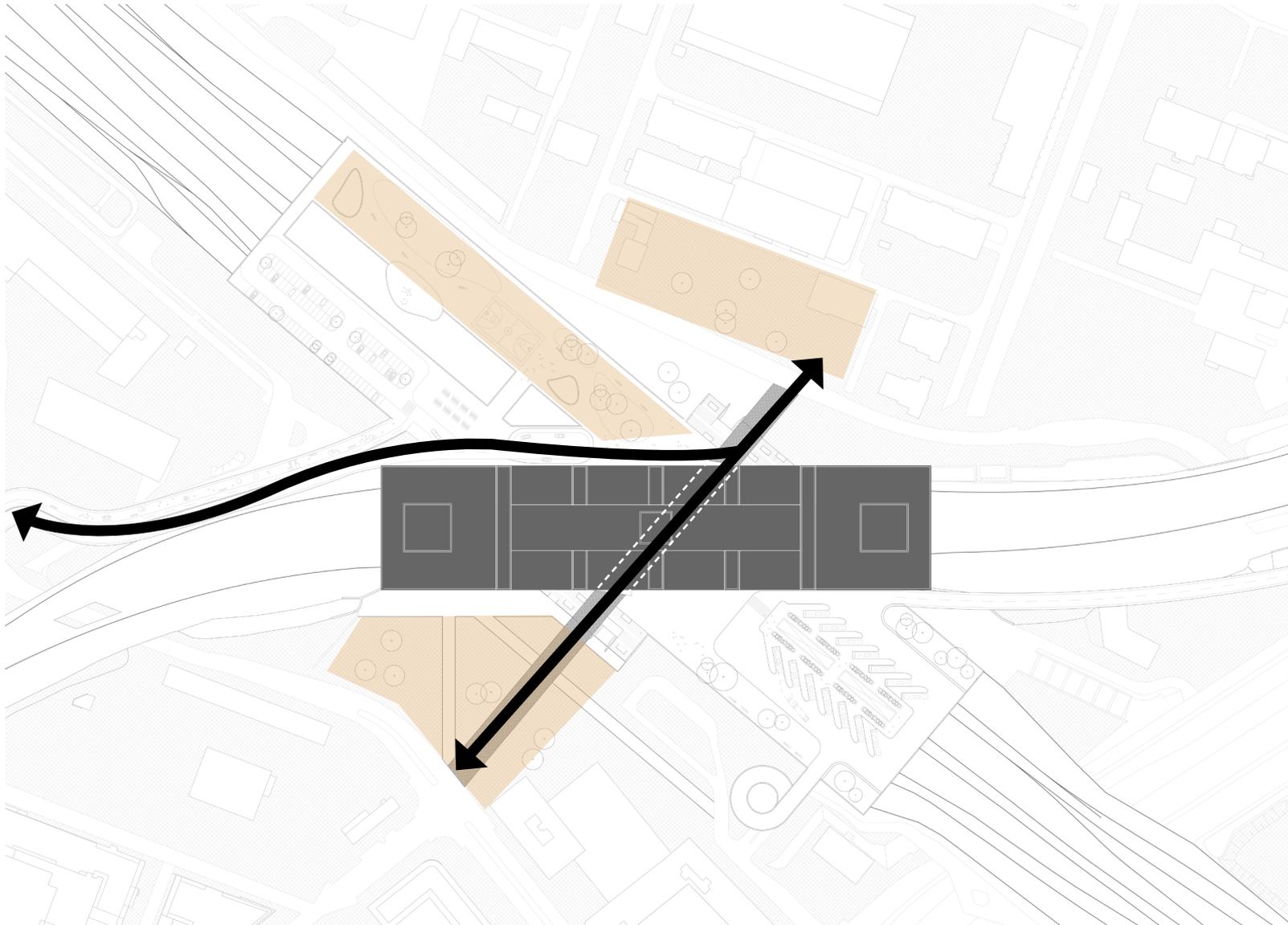
**BUILDING
IMPLEMENTATION**

Building implementation

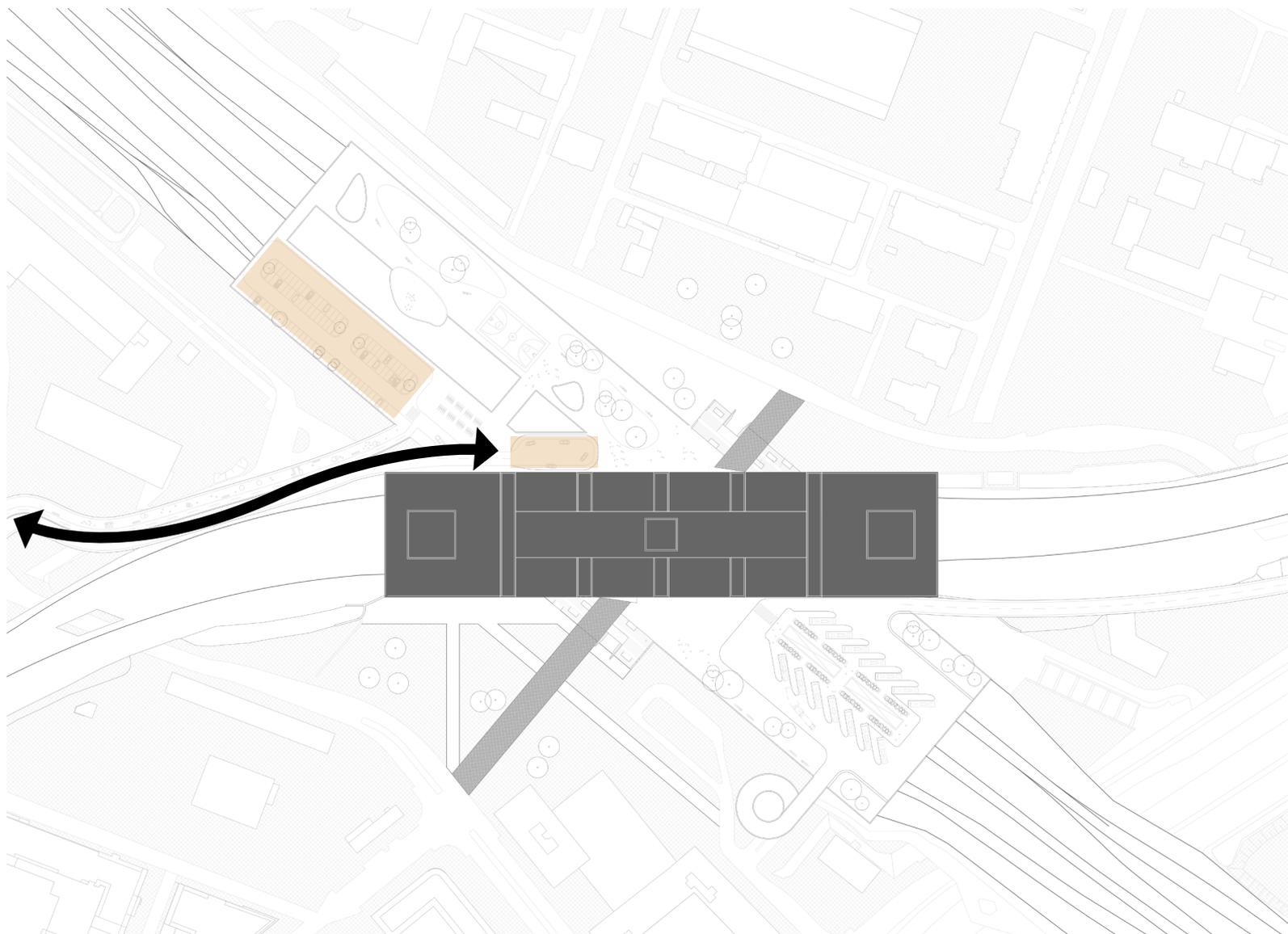
ENTRANCES



Building implementation
PEDESTRIAN PASSAGE

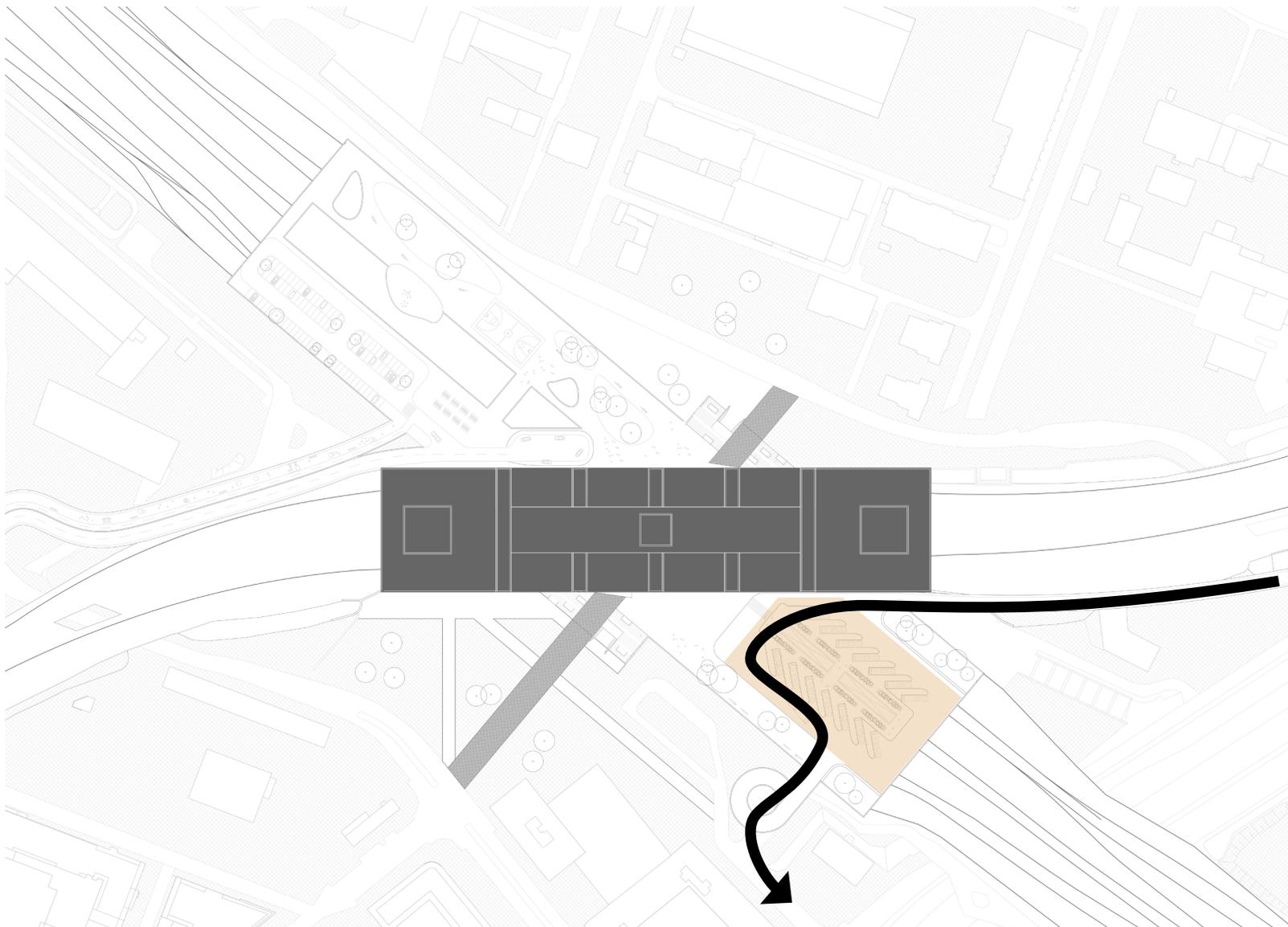


PARKING



Building implementation

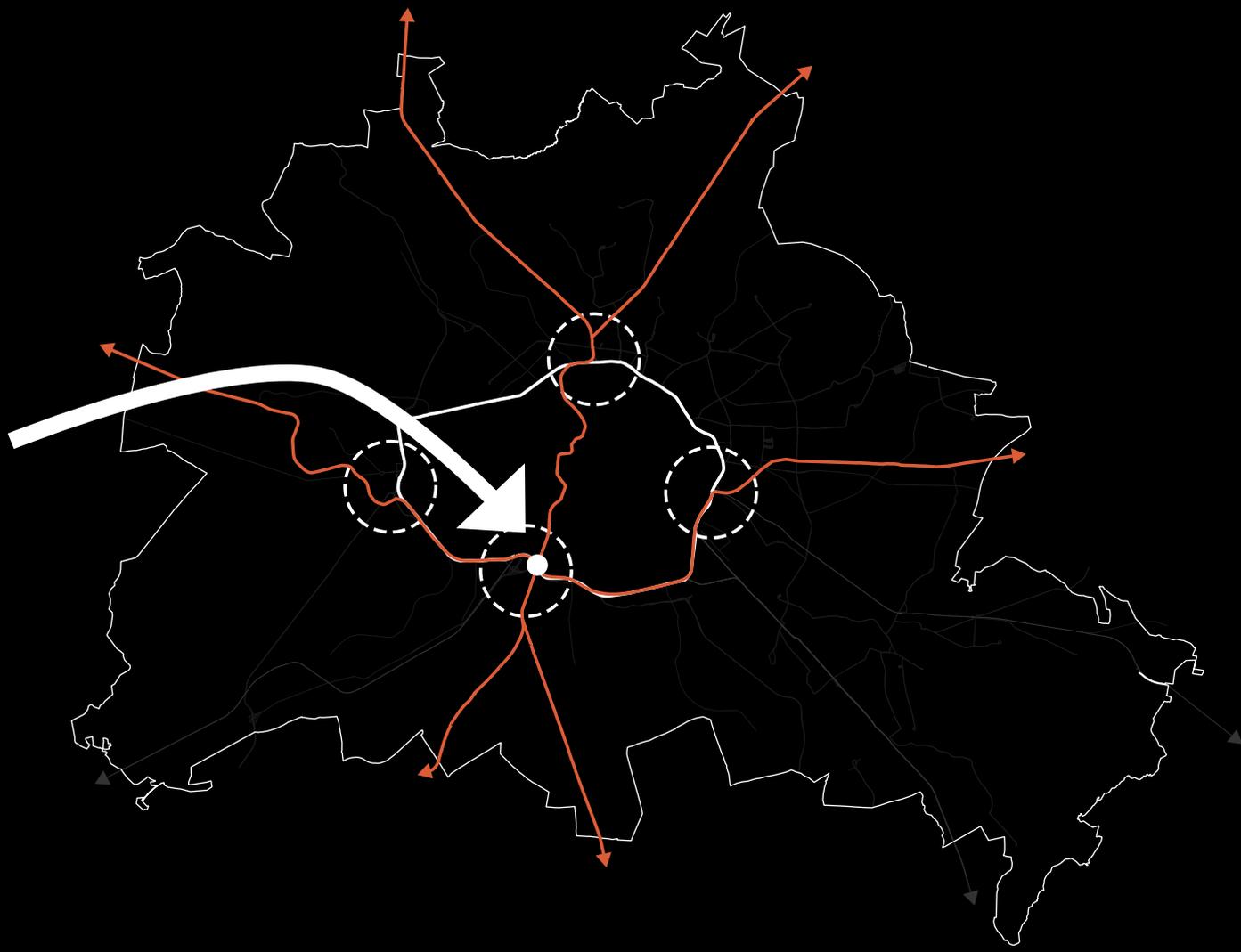
BUS PLATFORMS



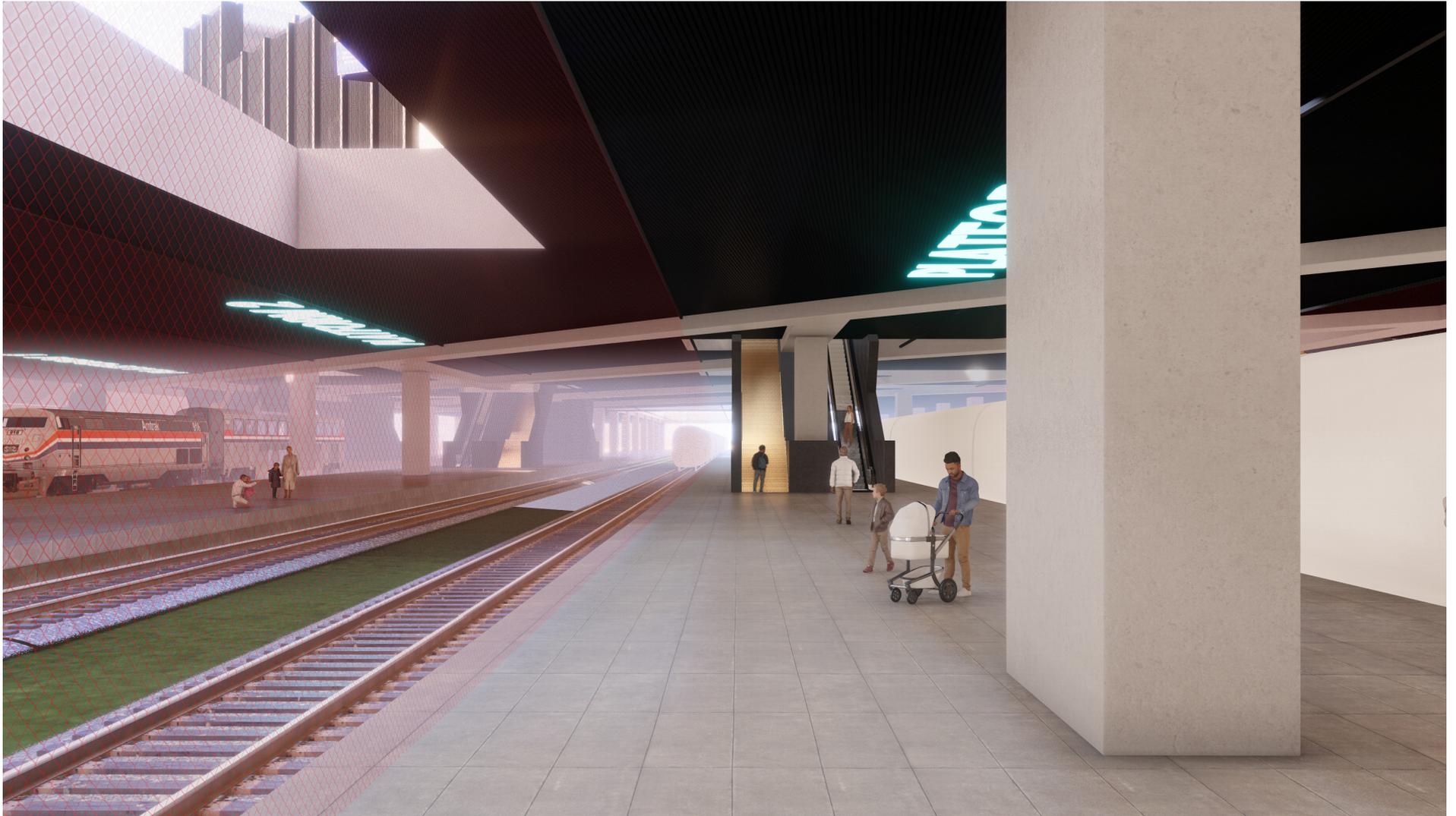
CHAPTER 4
THE HIGH-SPEED
EXPERIENCE

DAVE AGAIN

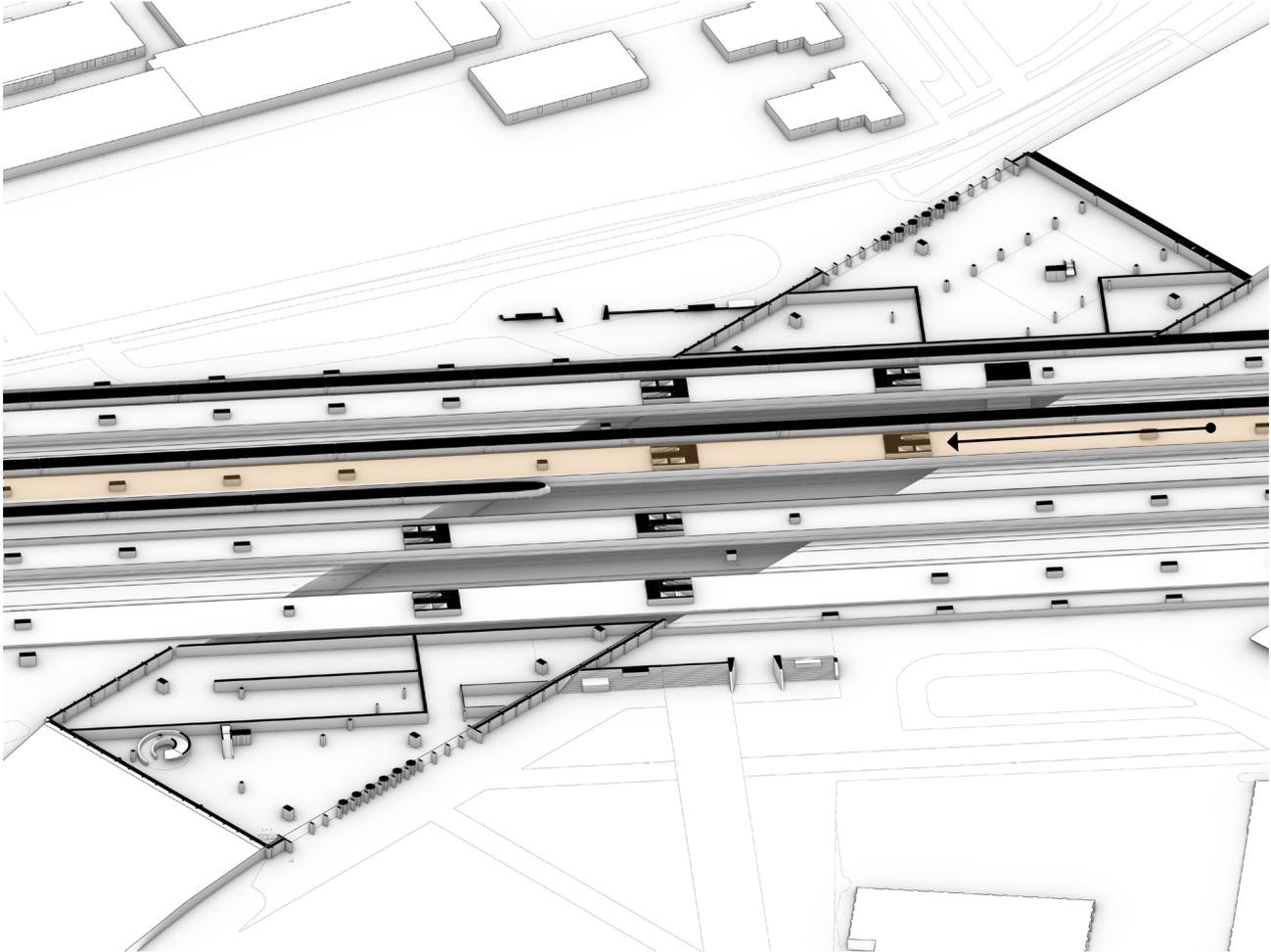




ON THE PLATFORMS



Floor plans
GROUND FLOOR

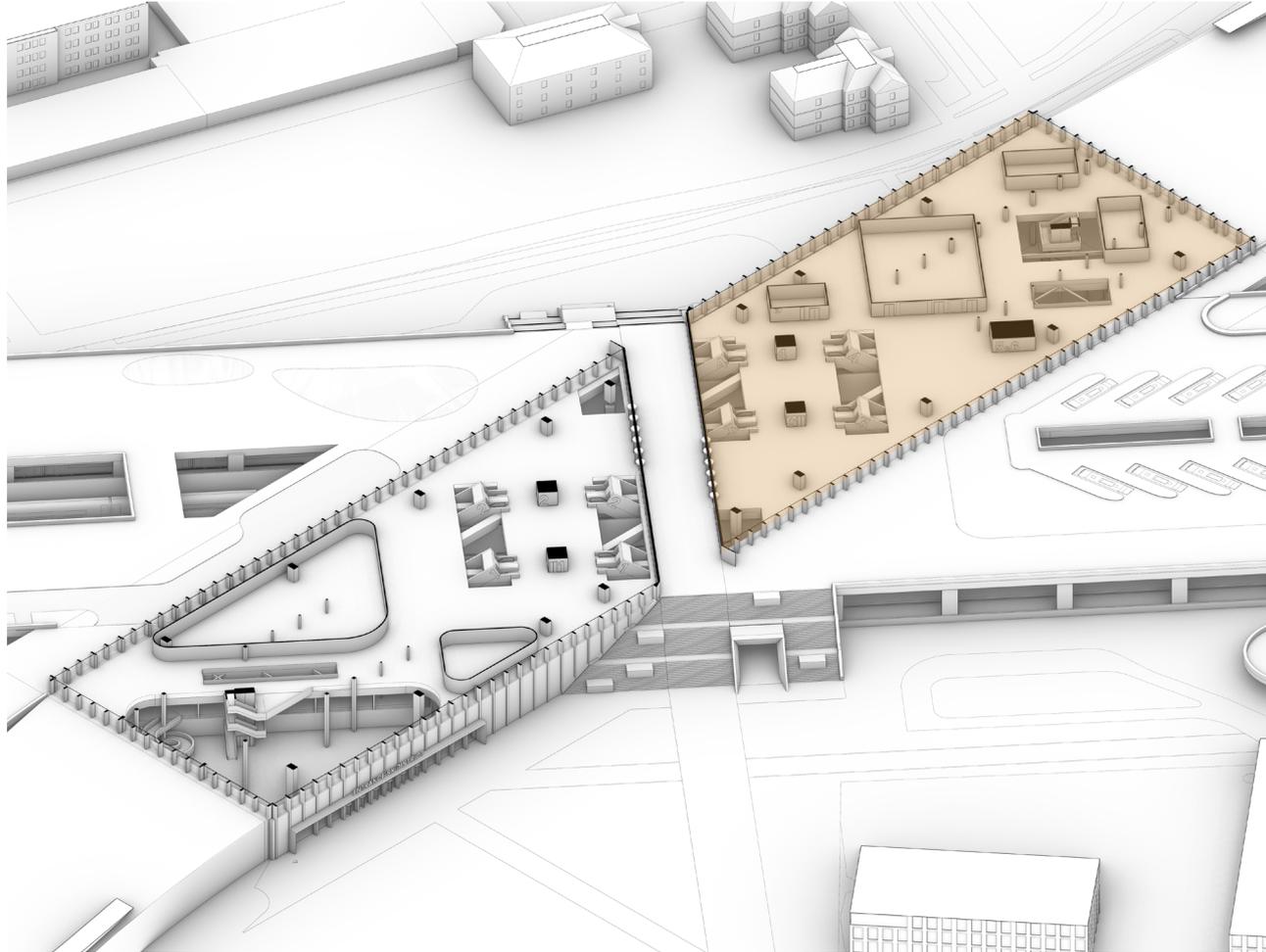


GET SOME LUNCH



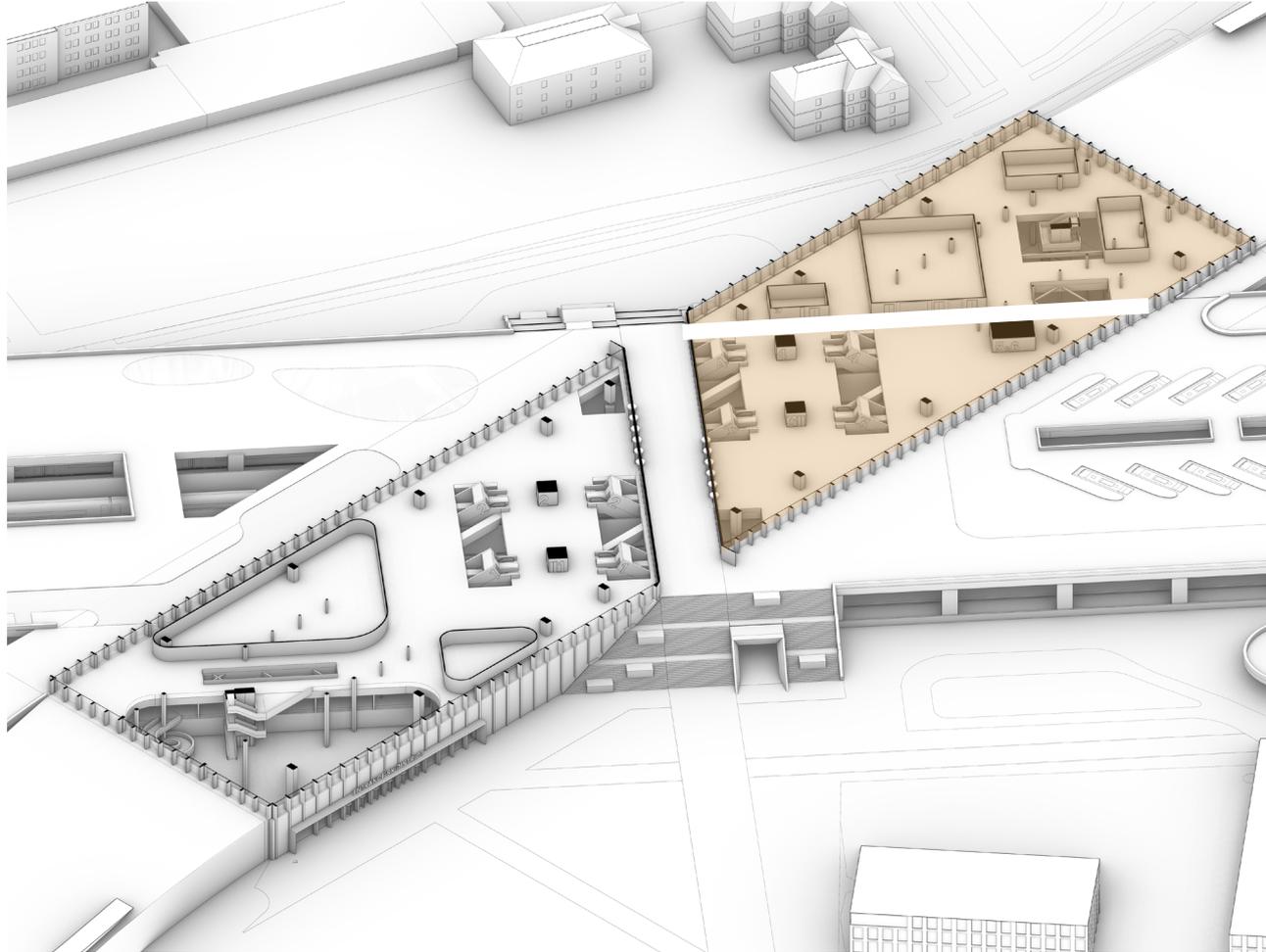
Floor plans

INTERNATIONAL STATION



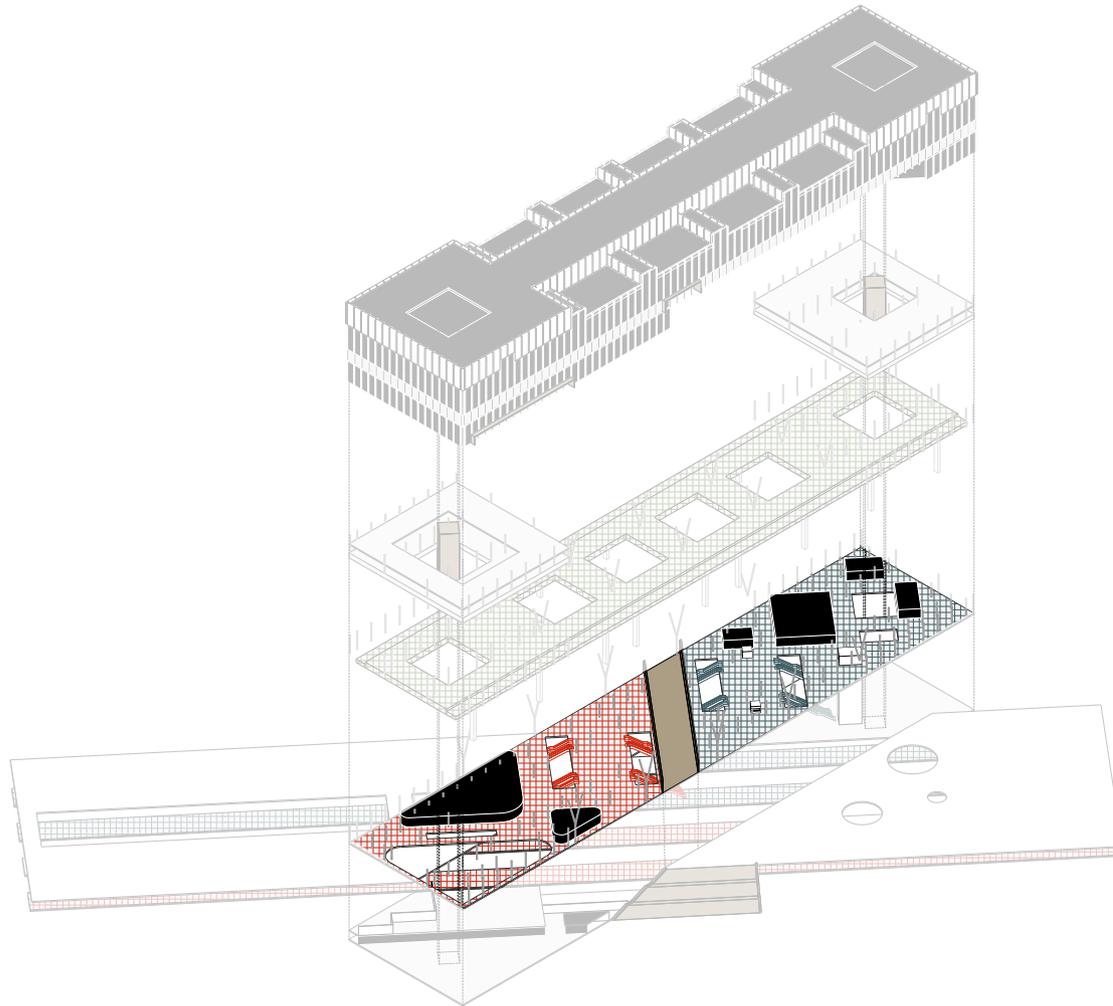
Floor plans

INTERNATIONAL STATION

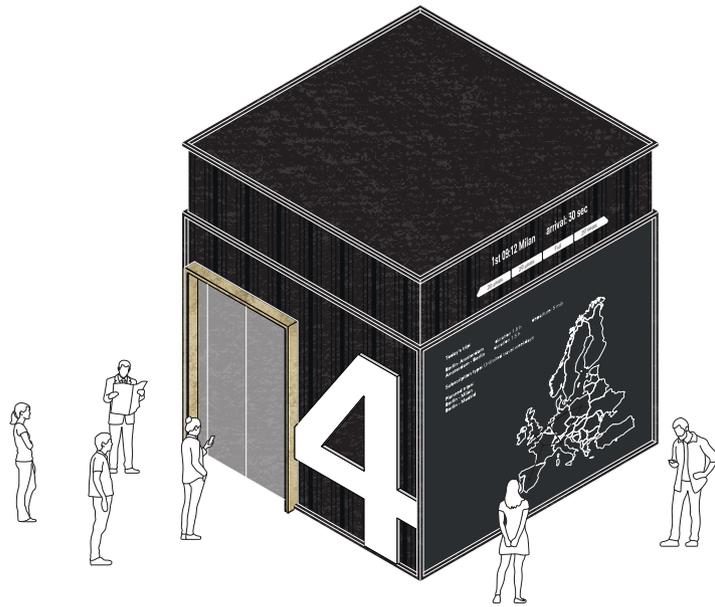


Floor plan concept

OBJECTS IN SPACE



Floor plan concept
OBJECTS IN SPACE

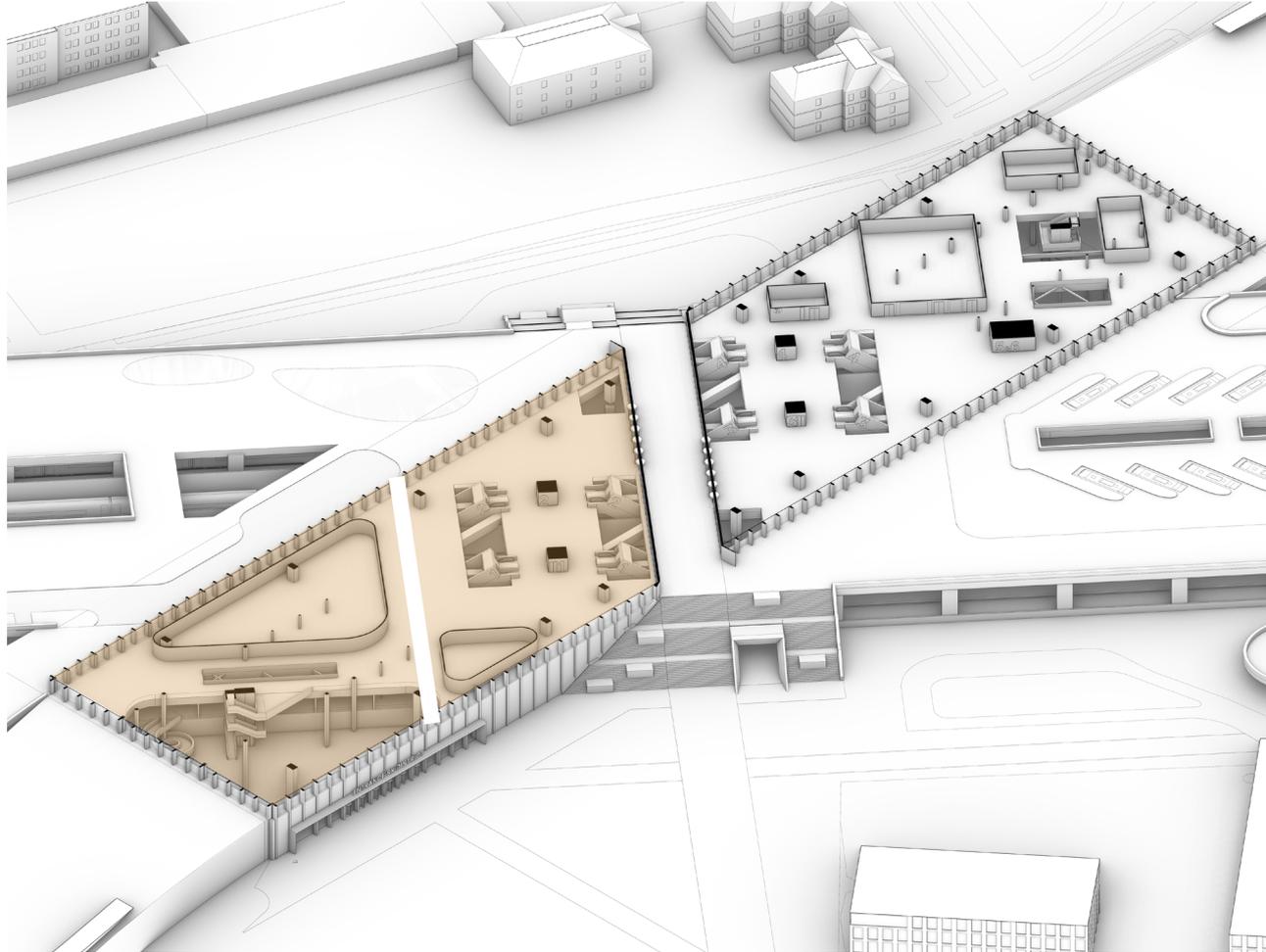


Elevator core

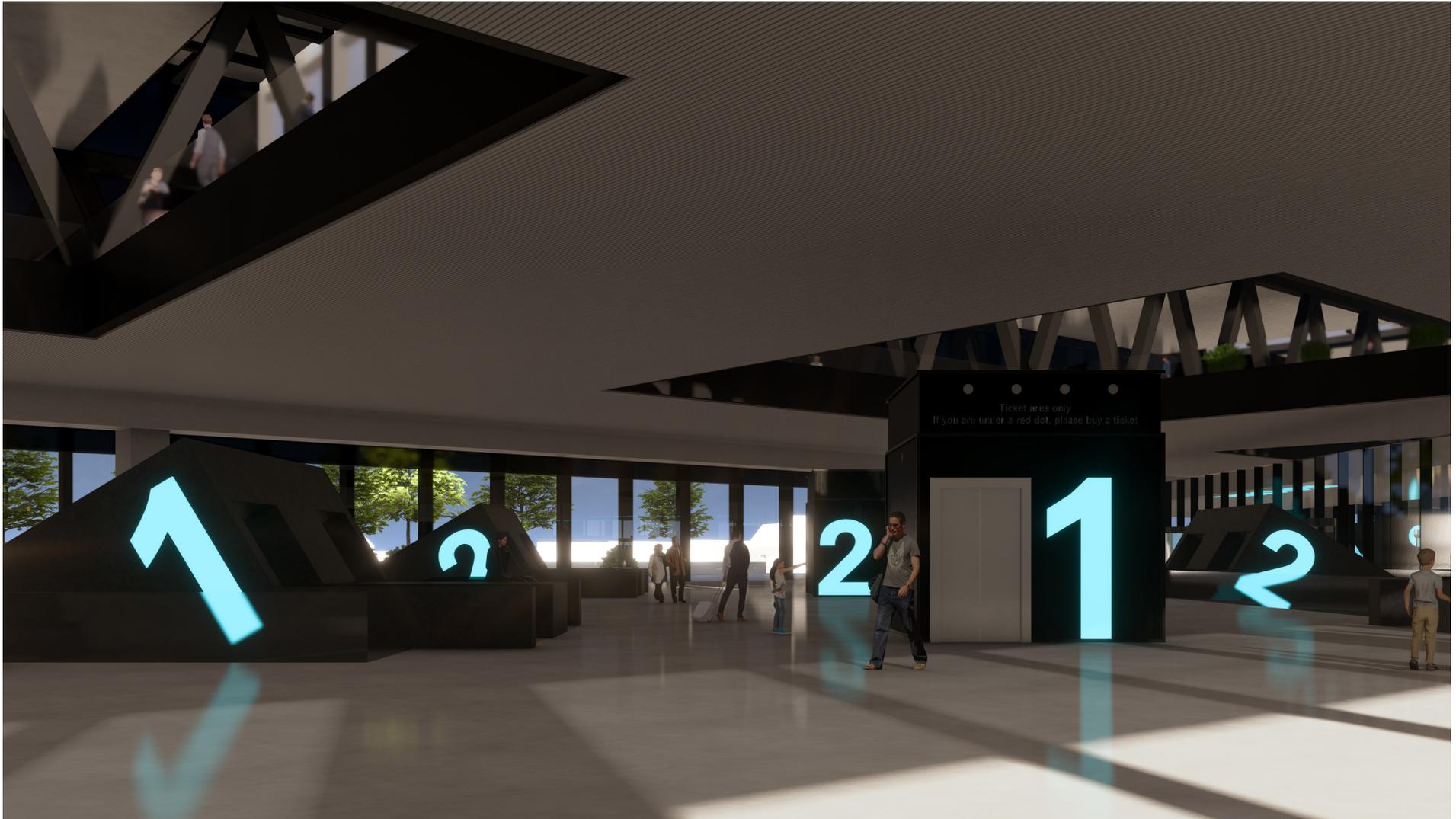


Retail unit

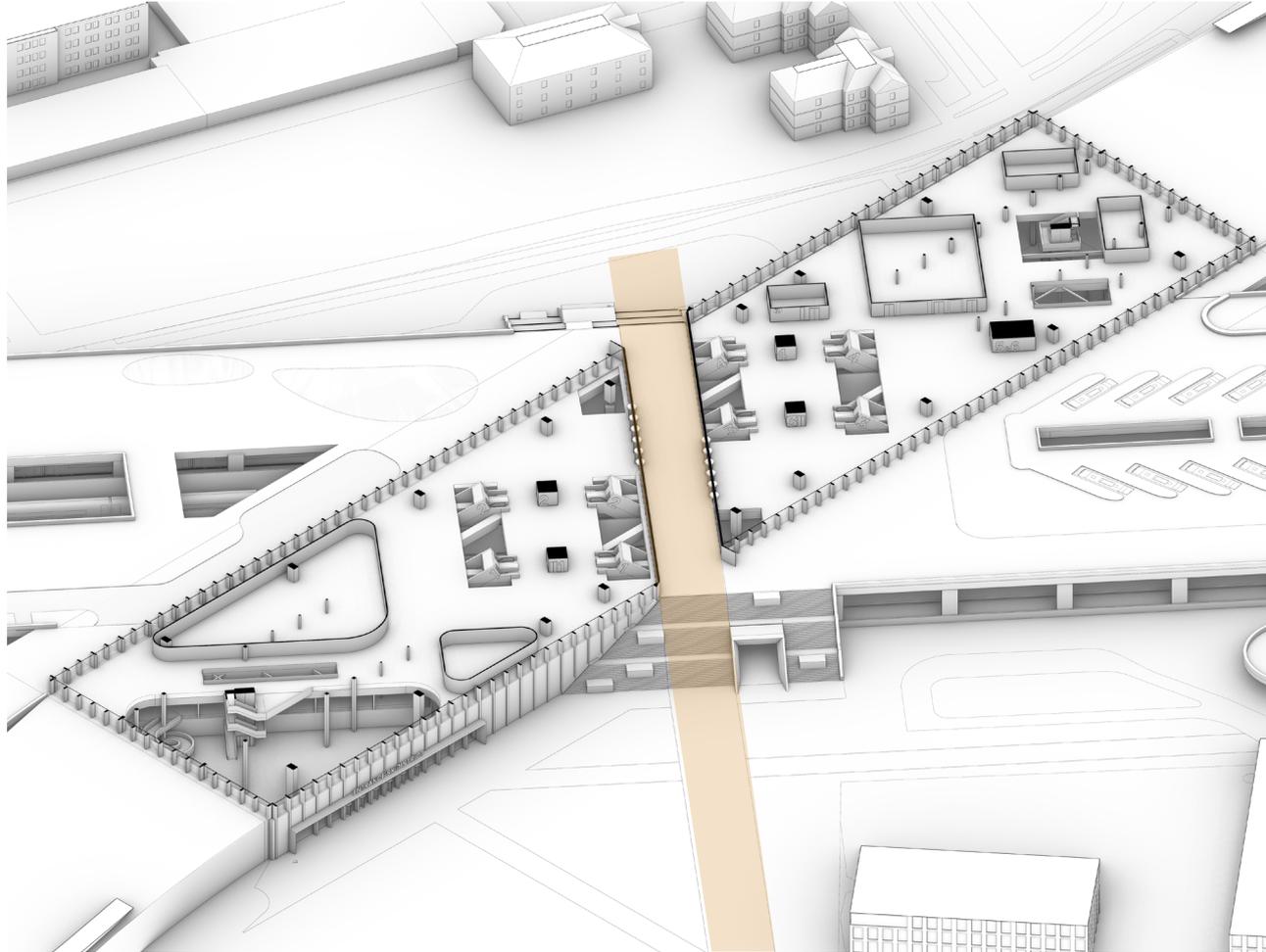
Floor plan
REGIONAL STATION



INSIDE THE REGIONAL STATION



Floor plan
PEDESTRIAN PASSAGE

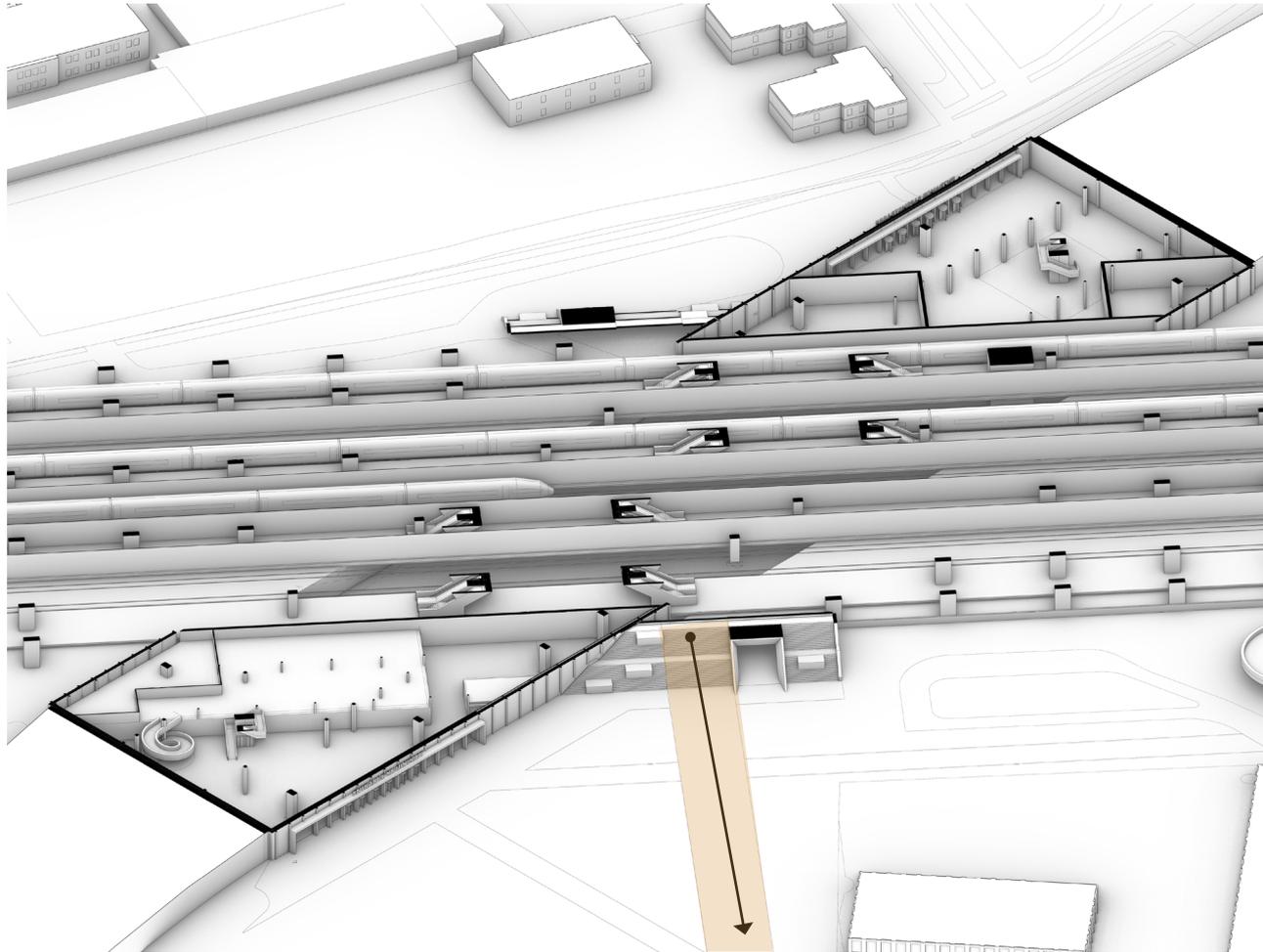


A CURRIOS WANDER



Floor plans

HEADING FOR A MEETING

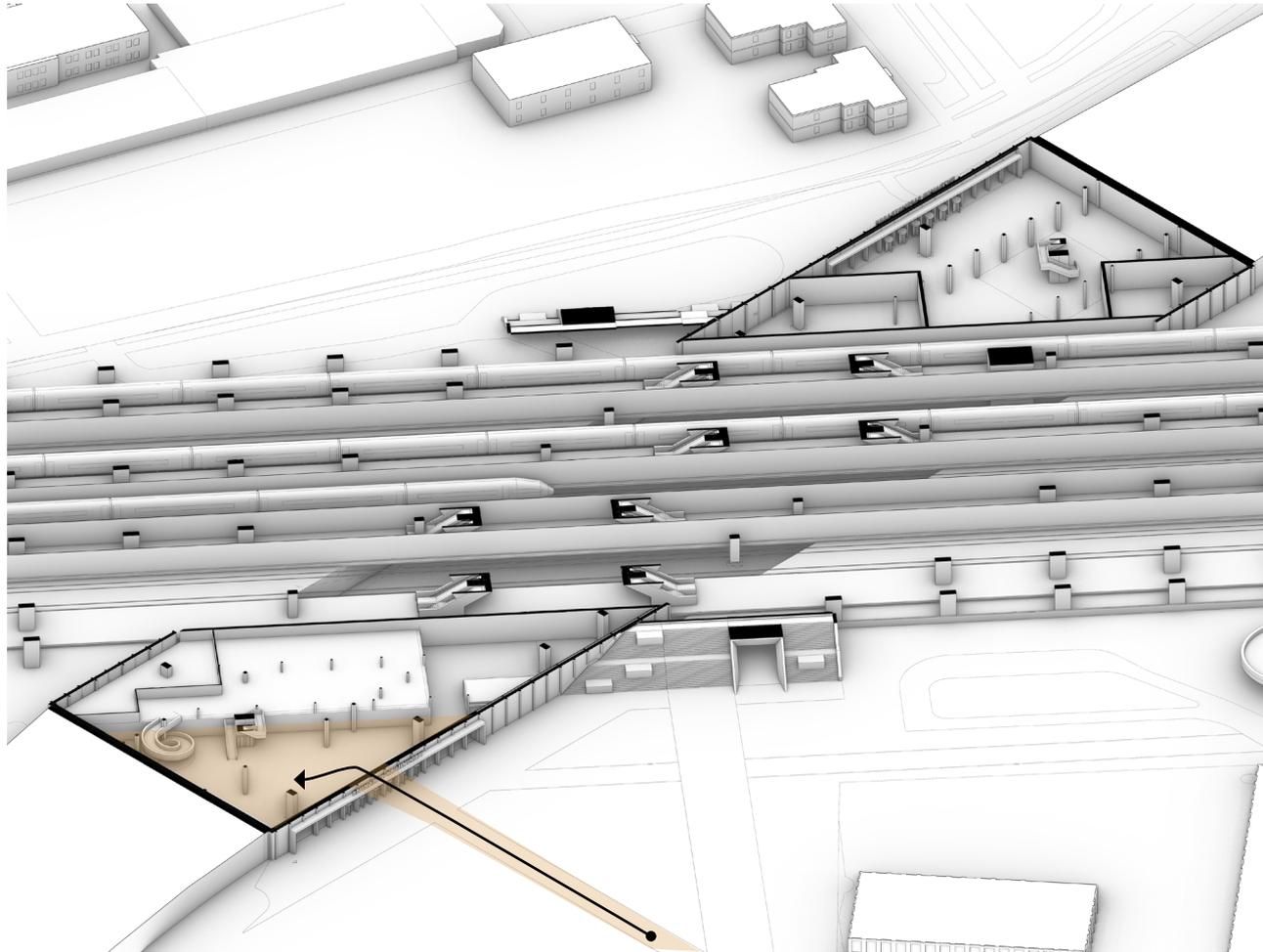


AFTER THE MEETING IN SX-DISTRICT



Floor plans

HEADING FOR A MEETING

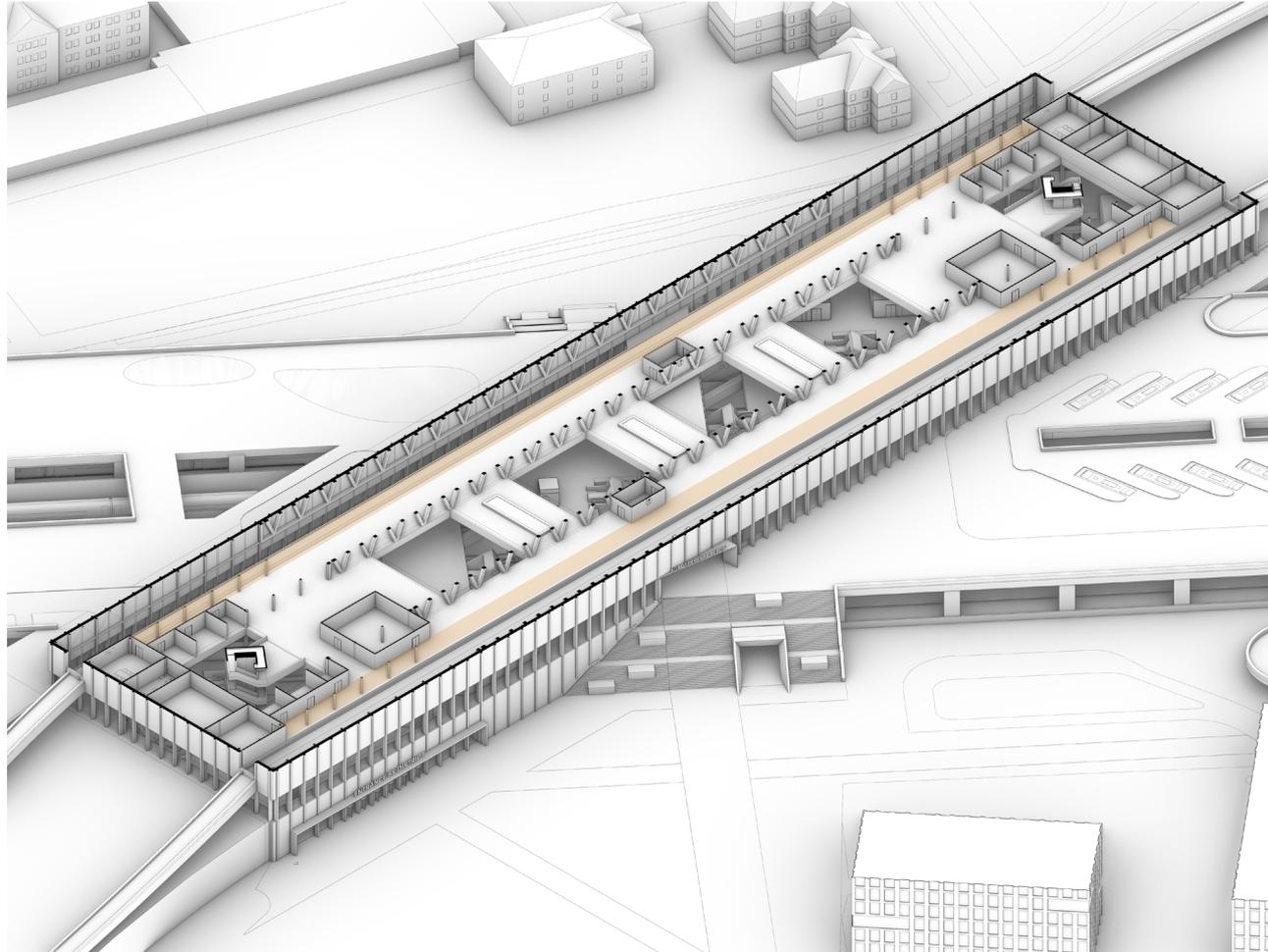


LUNCH BRAKE ON THE RING BAHN



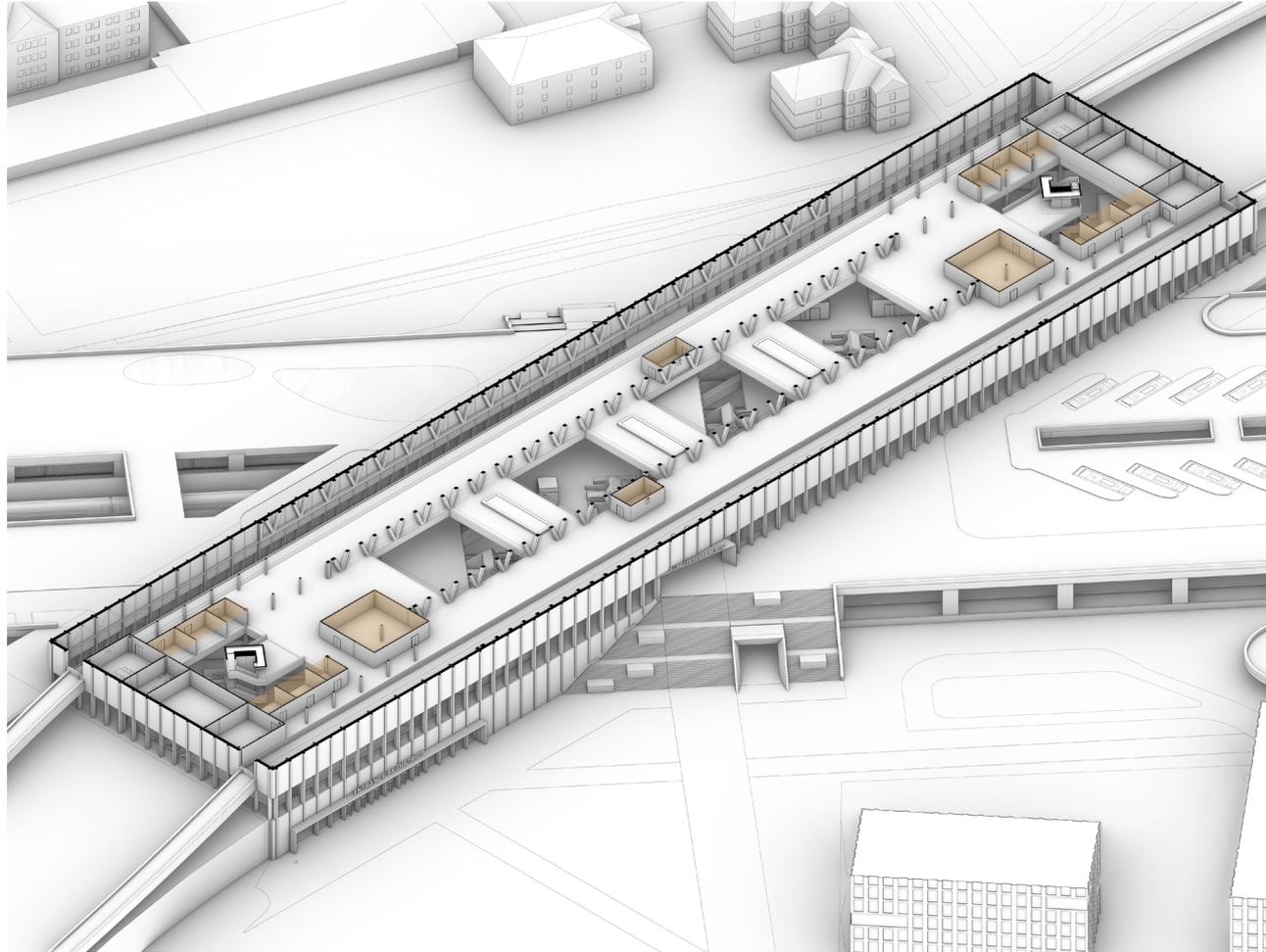
Floor plans

S- BAHN PLATFORMS



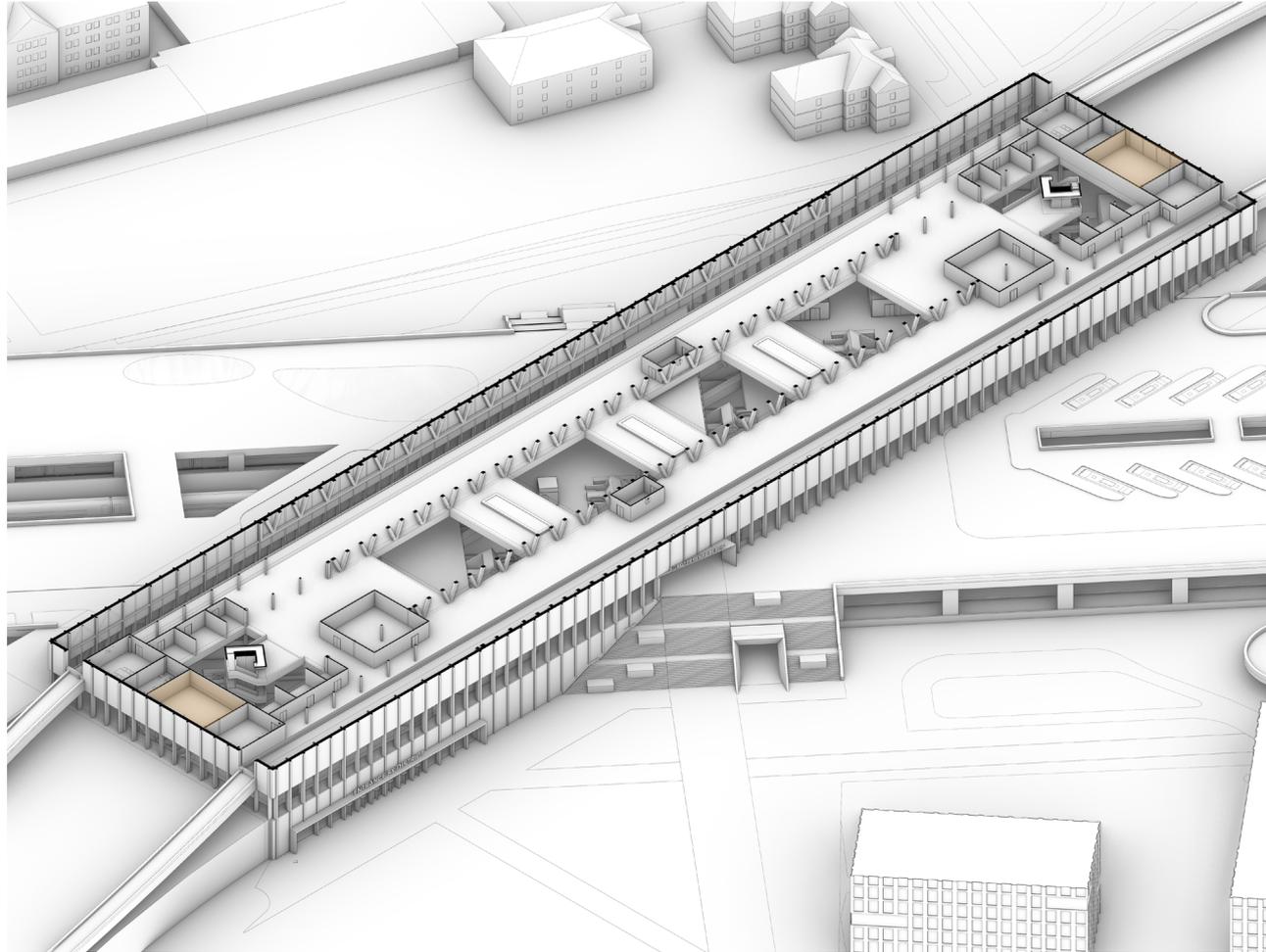
Floor plans

S- BAHN PLATFORMS

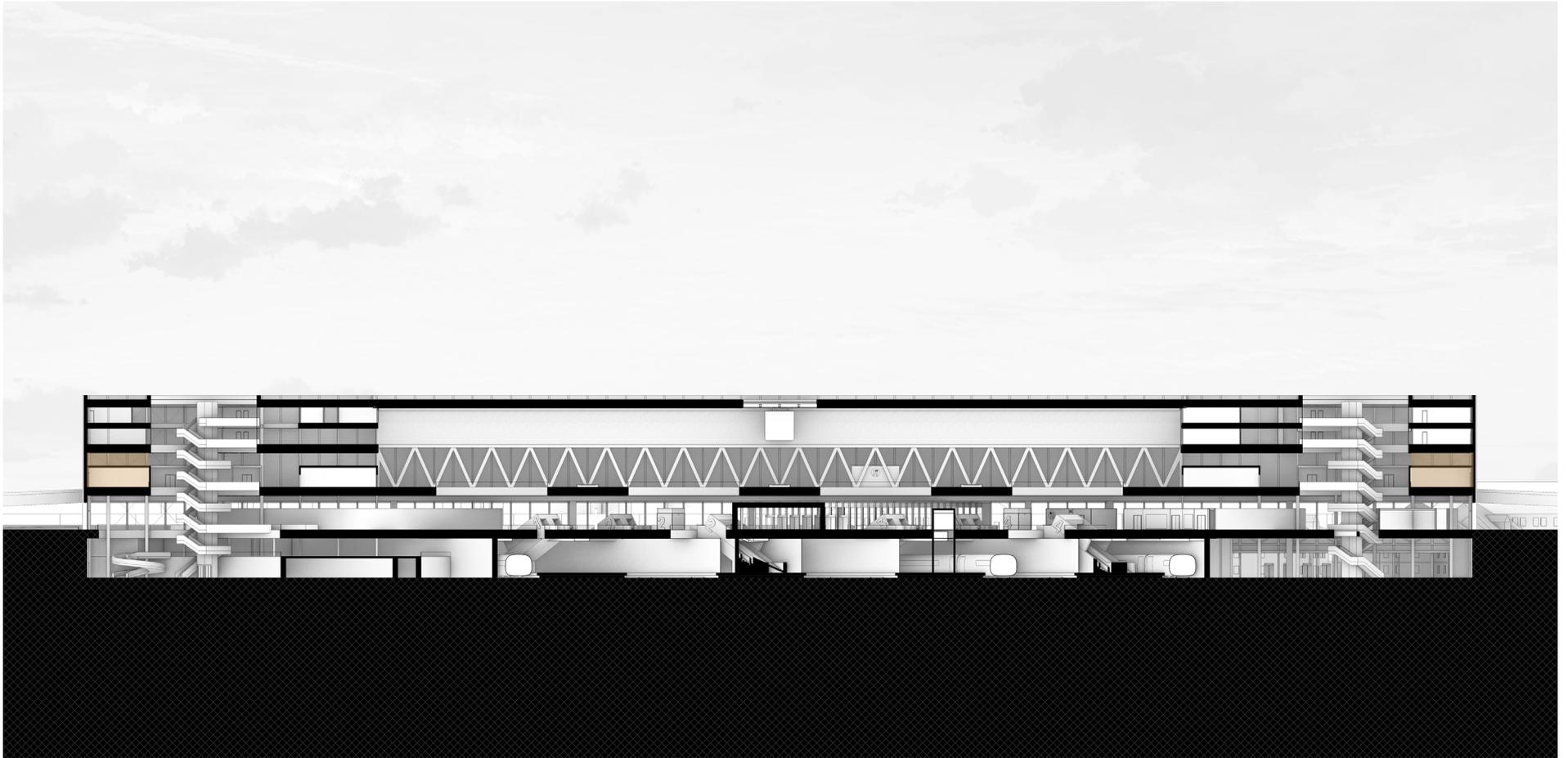


Floor plans

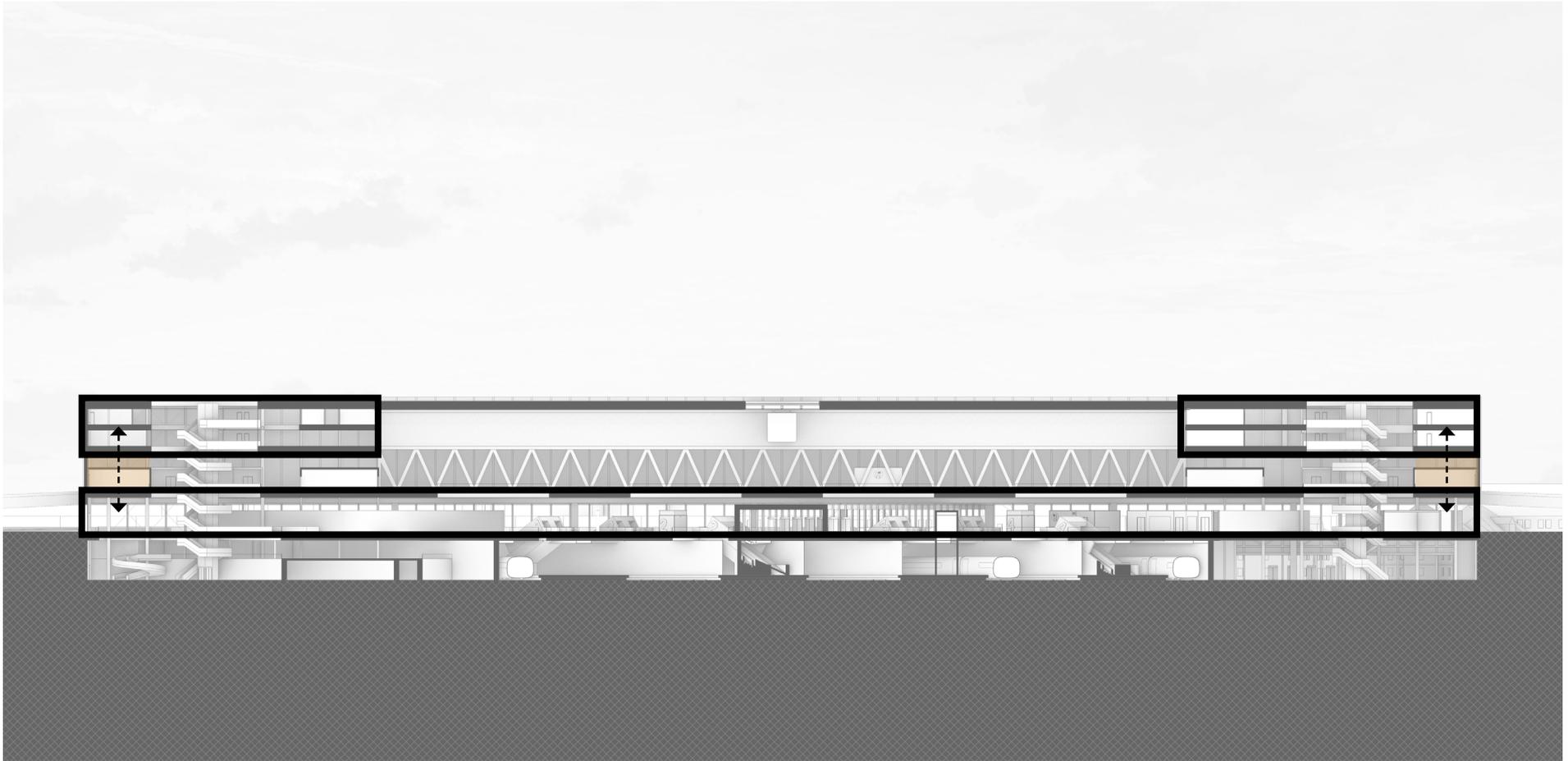
S- BAHN PLATFORMS



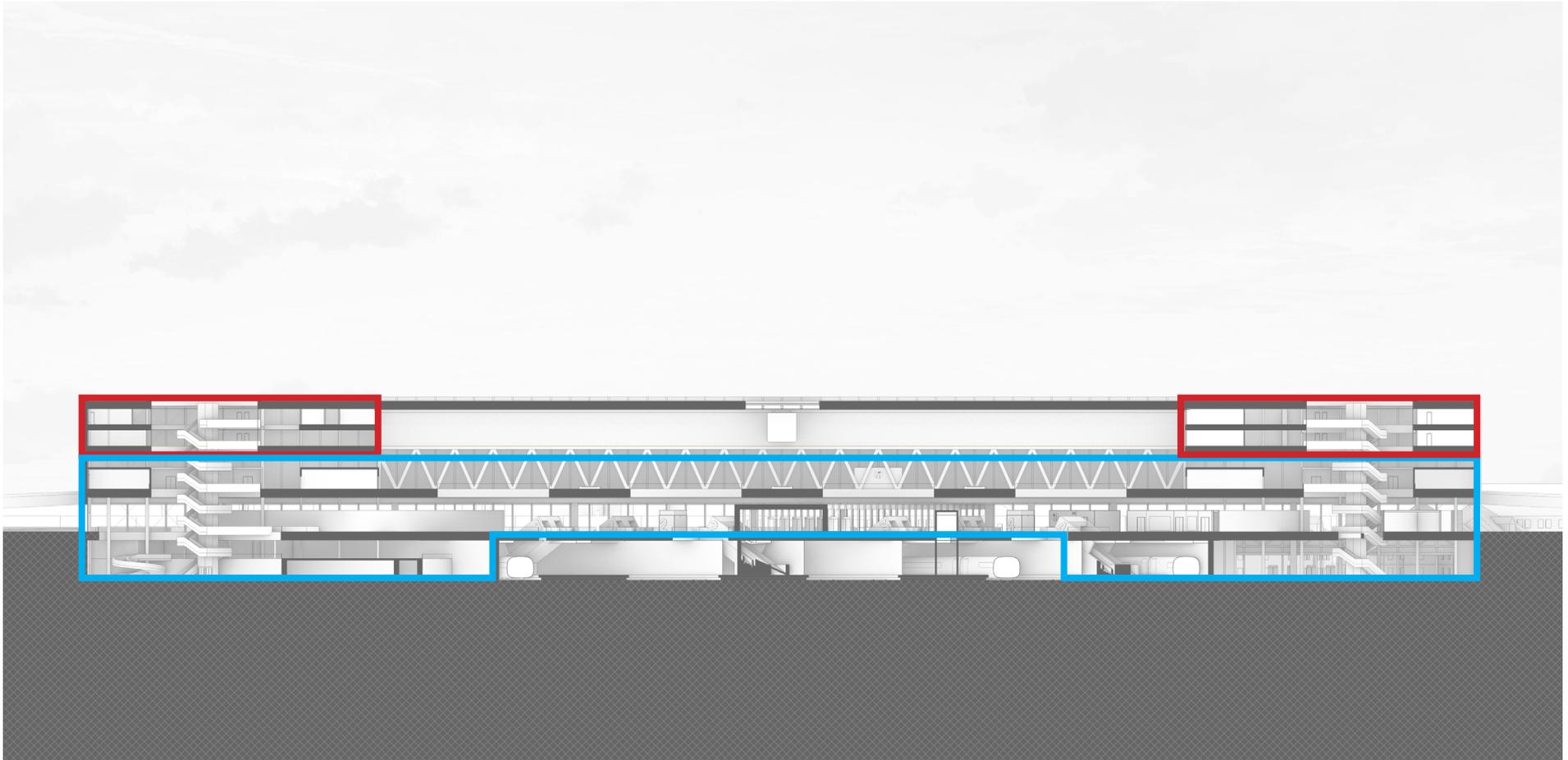
CLIMATE



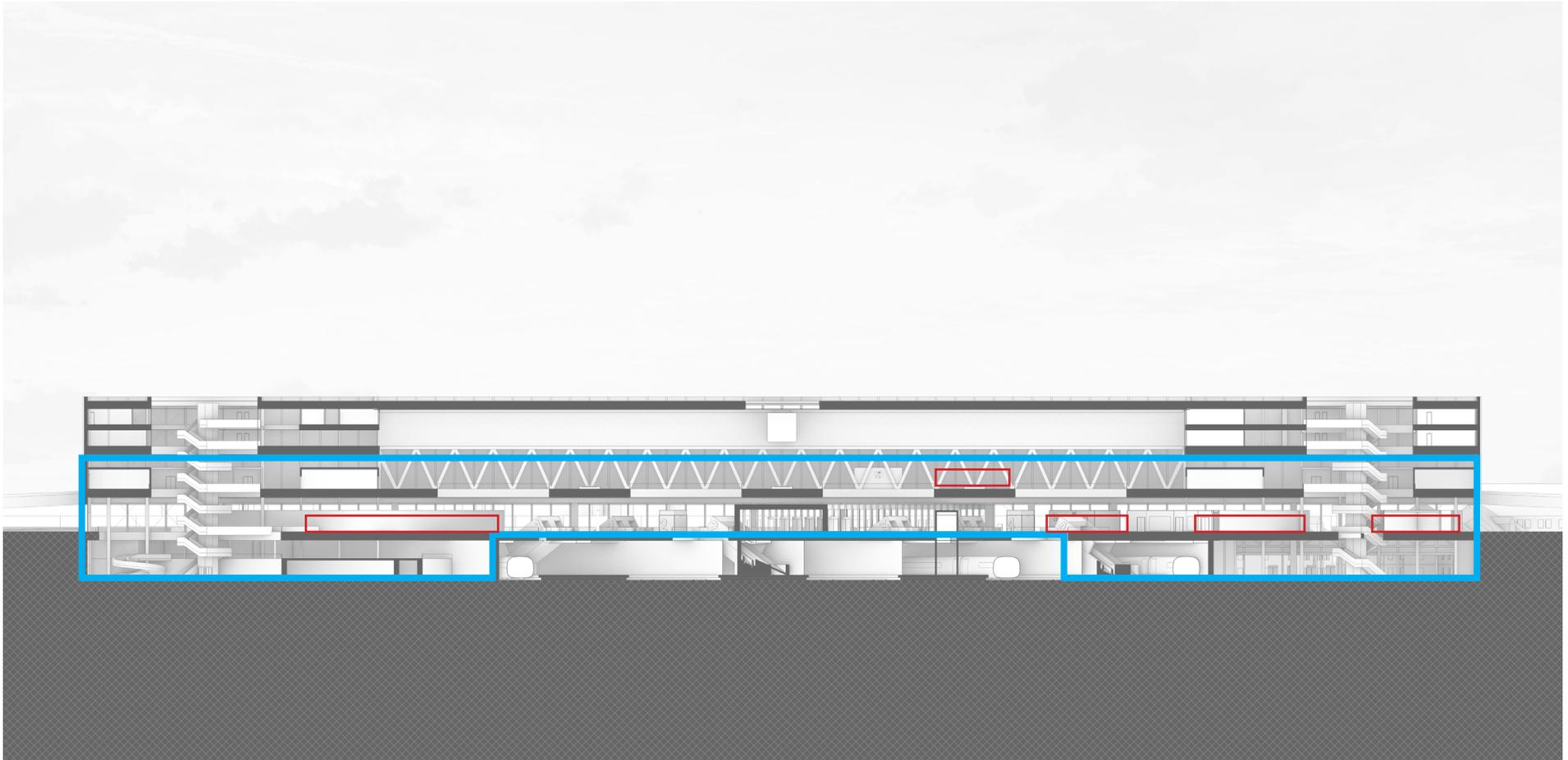
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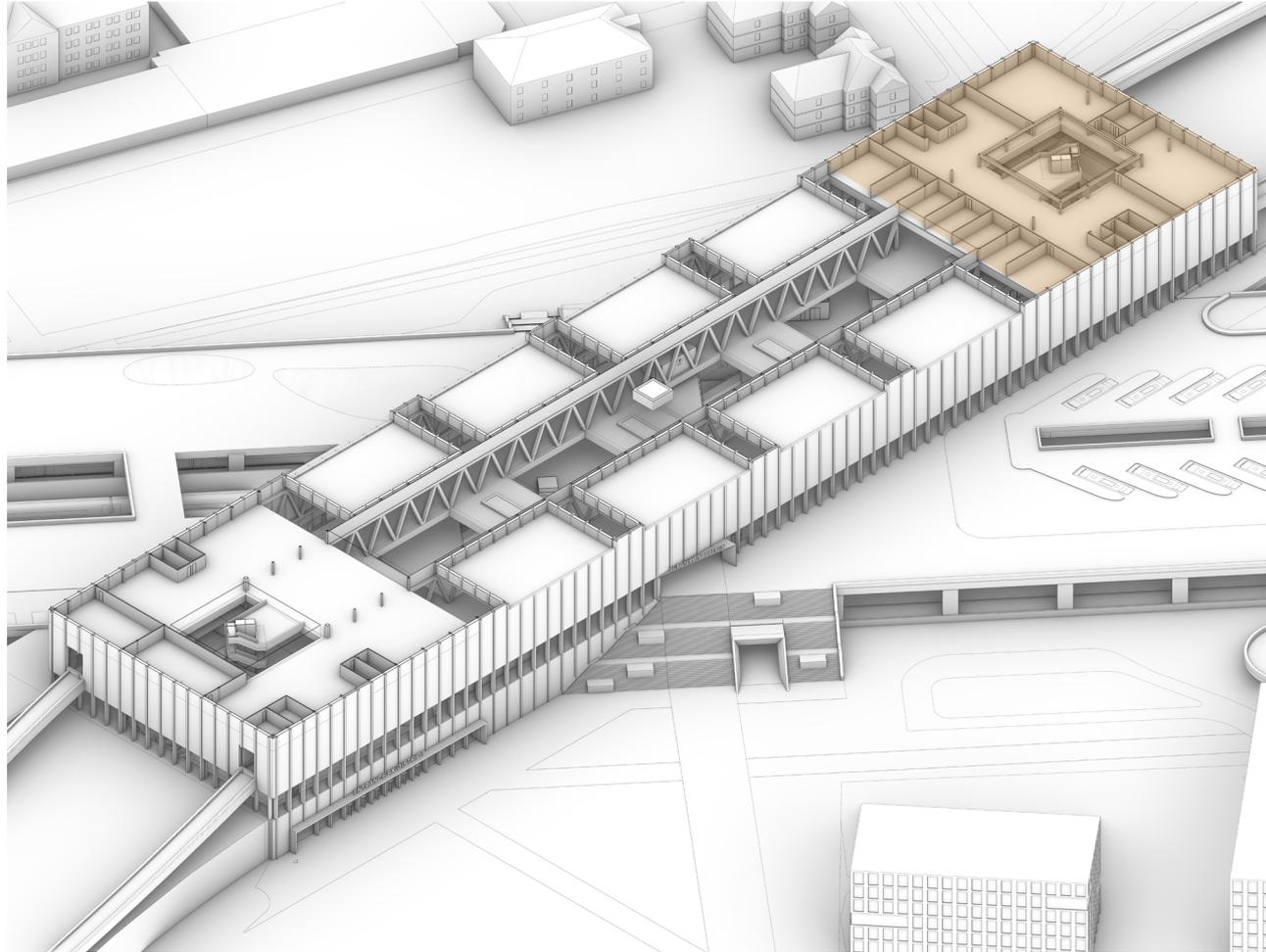
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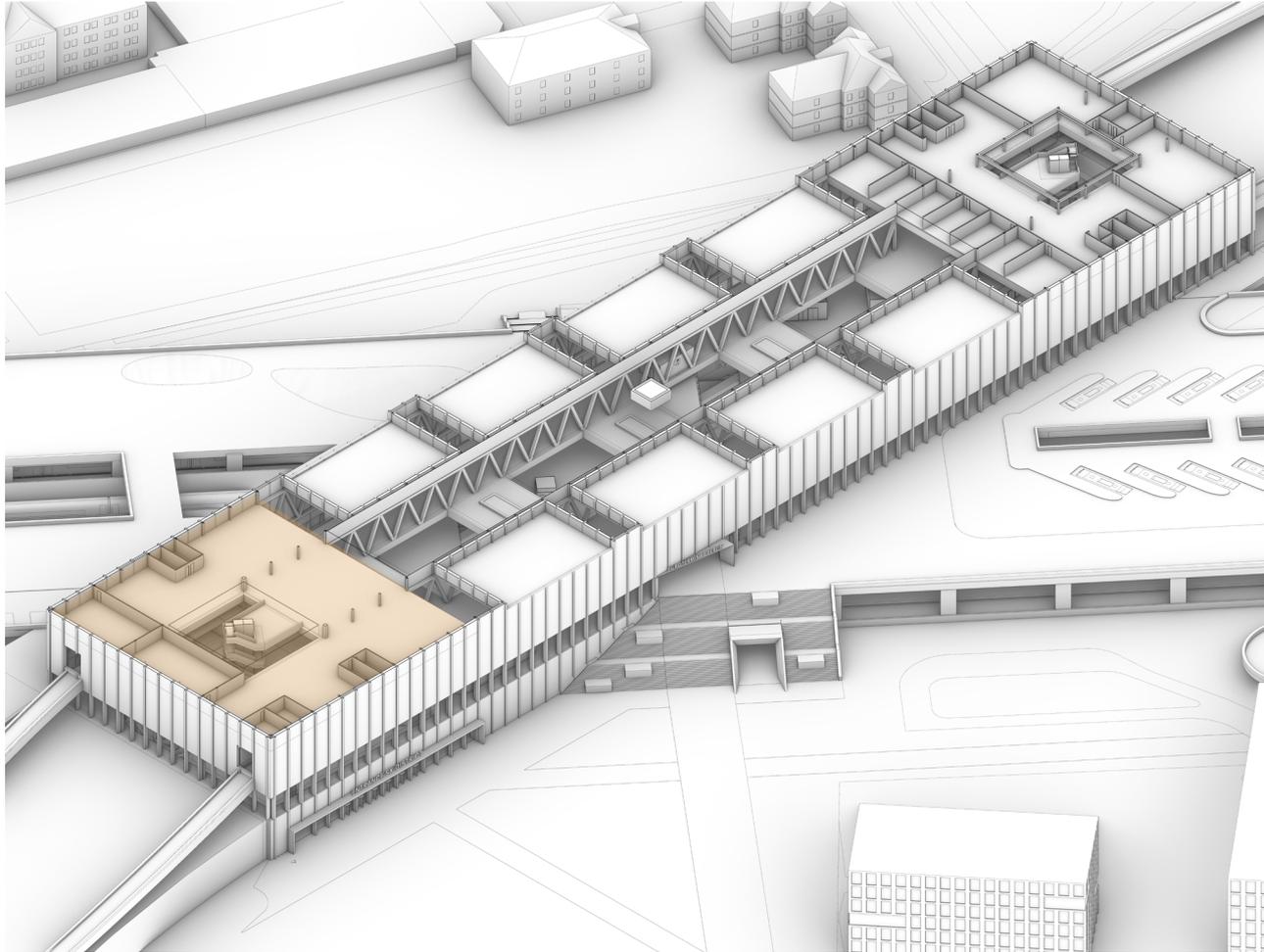
CLIMATE



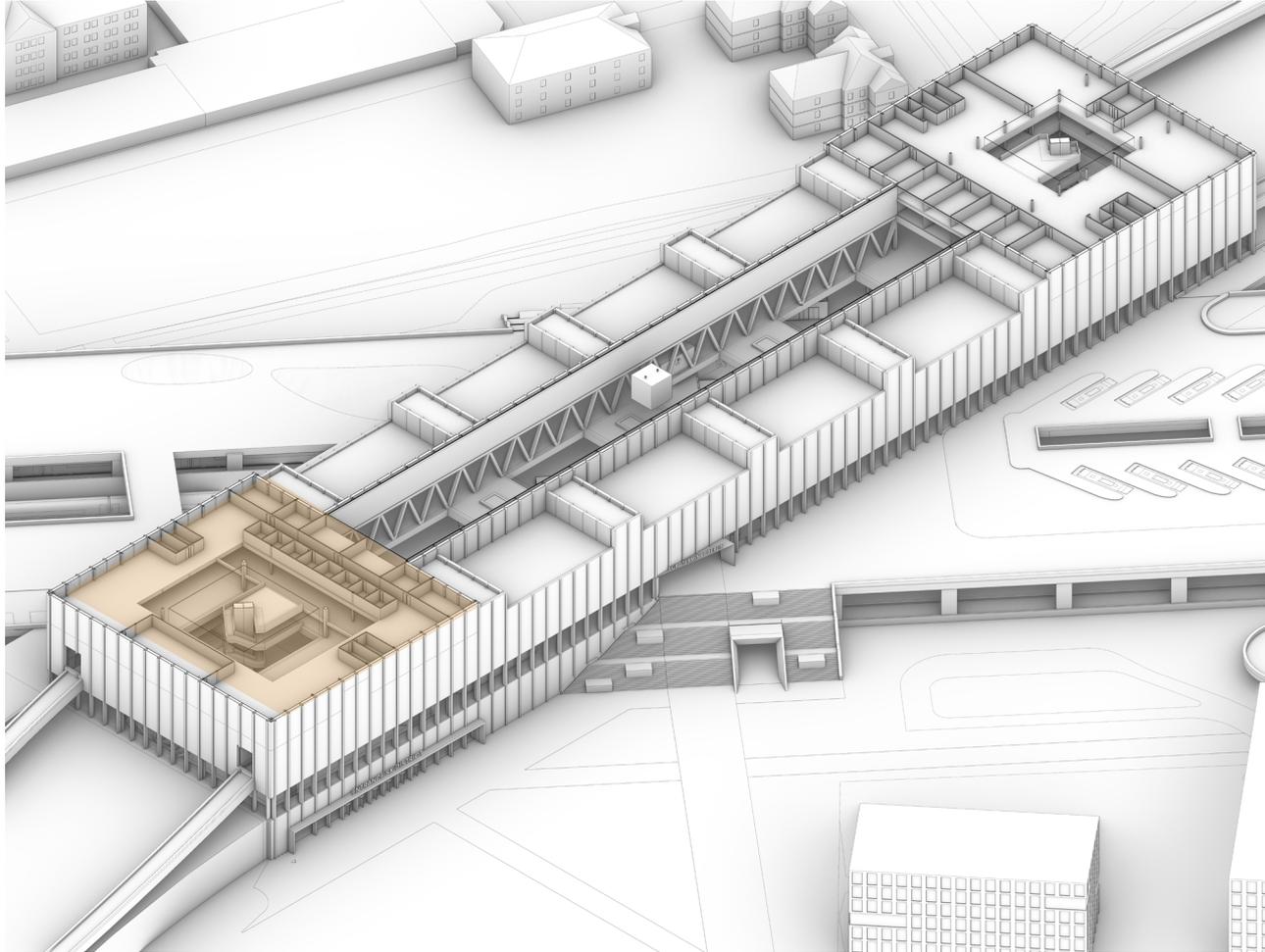
Floor plans
FOURTH FLOOR



Floor plans
FOURTH FLOOR



Floor plans
FIFTH FLOOR



ONE LAST MEETING





12:45

EUROTERMINAL BERLIN

THANK YOU