
COMPLEX PROJECTS

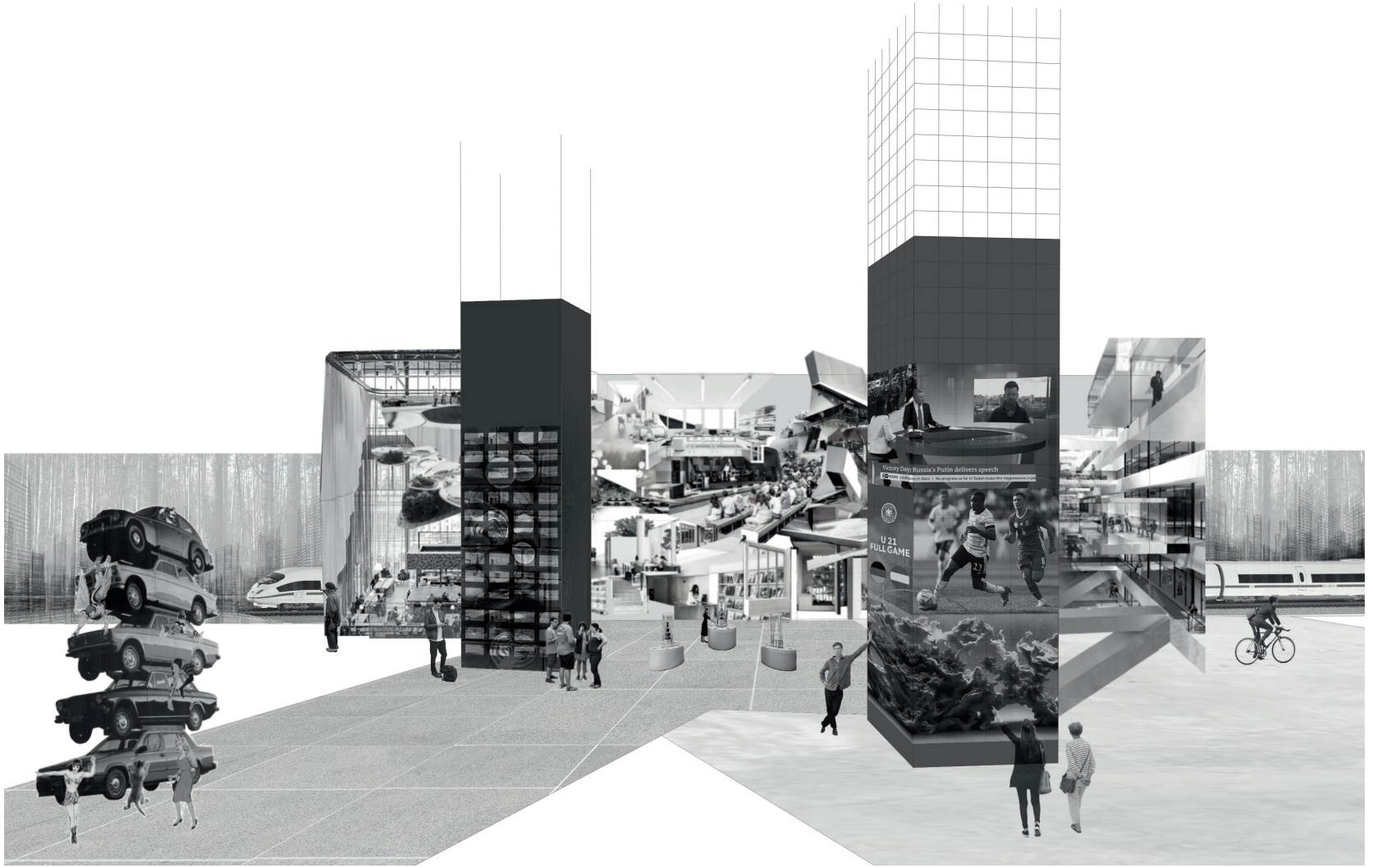
# MULTIMODALITY FORUM JUNGFERNHEIDE

**A park-and-ride train station that encourages motorists to use green mobility to get to Berlin's city centre.**

Steven ter Schure

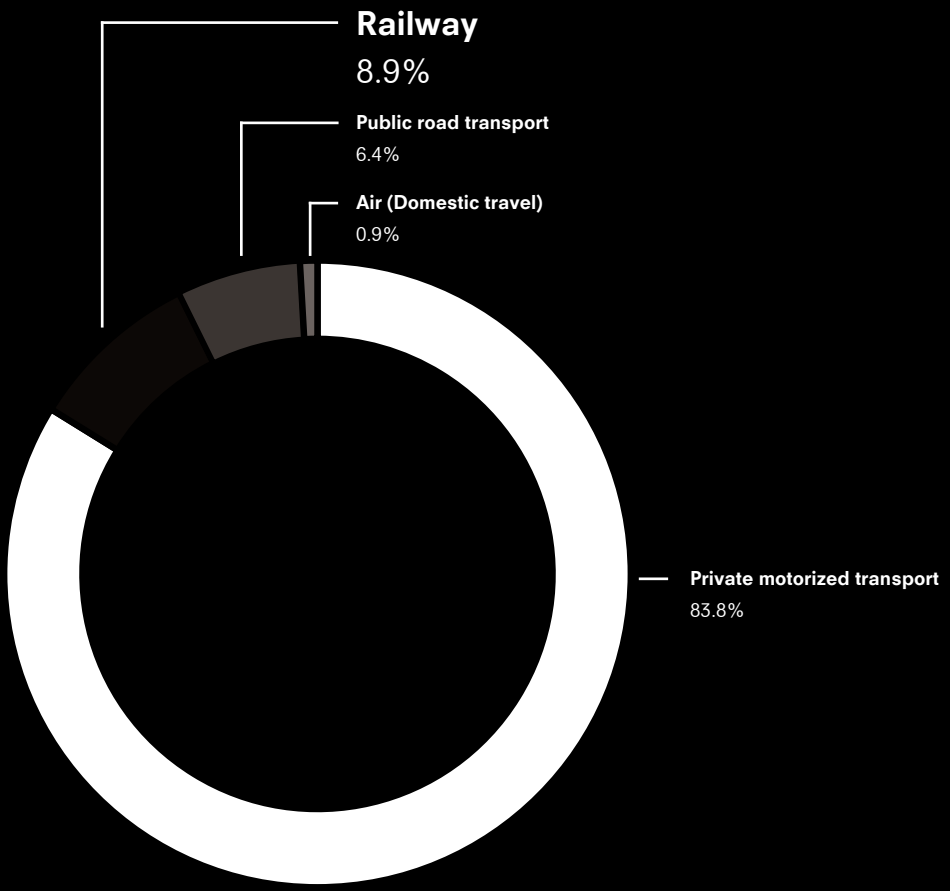
07/07/2023

# A NEW PARK AND RIDE SYSTEM




**A more service and experience related approach towards train stations.**

# COMMUTING DATA




**CAUSING CONGESTION AND UNHEALTHY CONDITIONS IN THE METROPOLITAN AREA.**

© Courtesy of Berlin Autofrei


**LIMIT CARS WITHIN BERLIN'S RINGBAHN, A LONG CIRCULAR ROUTE AROUND THE INNER CITY.**

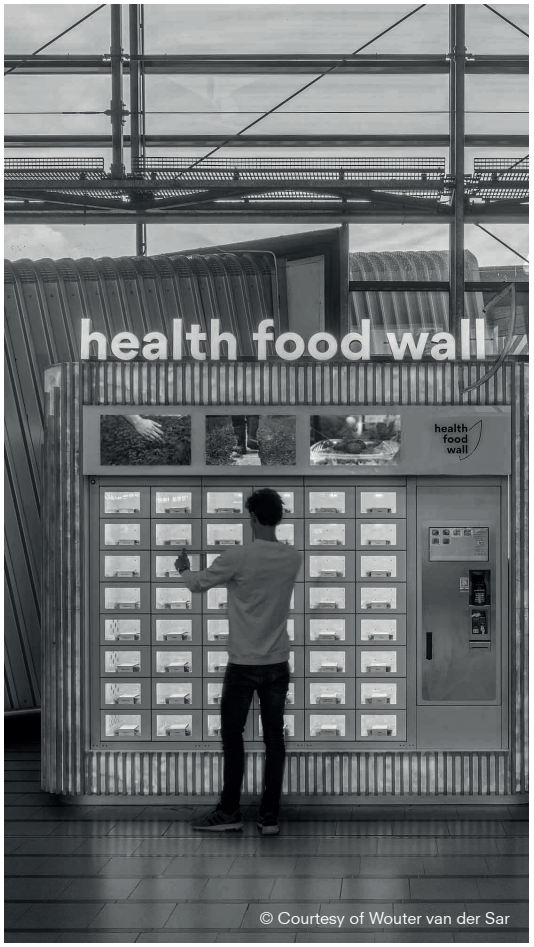
# COMPACTING TRANSPORT


**200 people in 177 cars**


**200 people in 3 buses**


**200 people in 1 light rail train**

# A NEW PARK-AND-RIDE SYSTEM



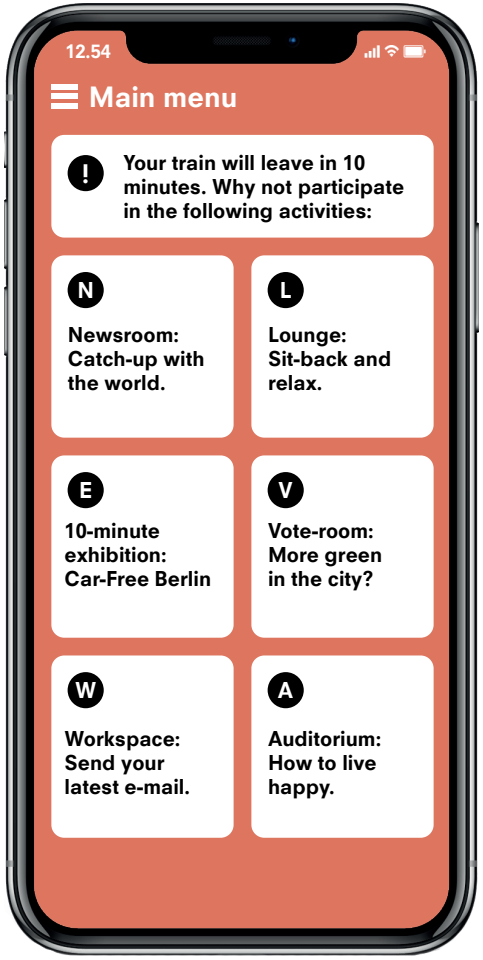

**Serving**


**Experience**

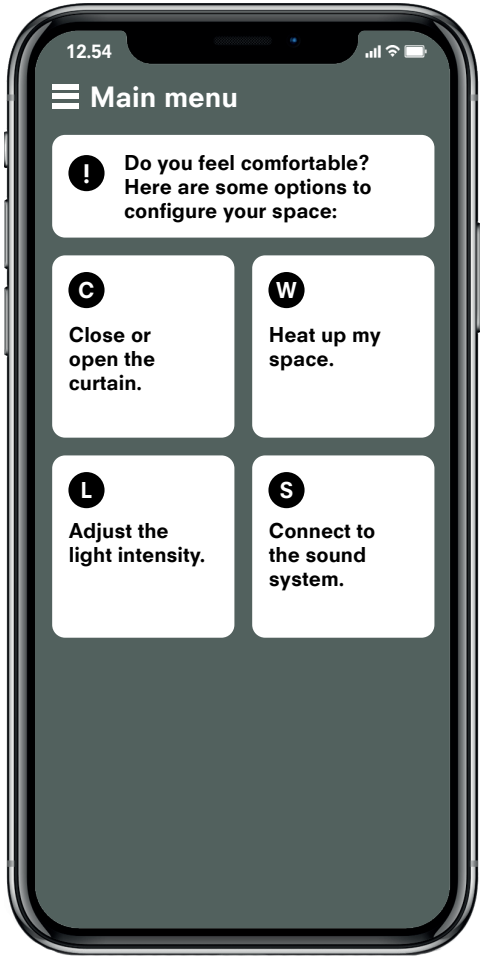

**Adaptability**

# CREATE PERSONALISED EXPERIENCE


**Service related**

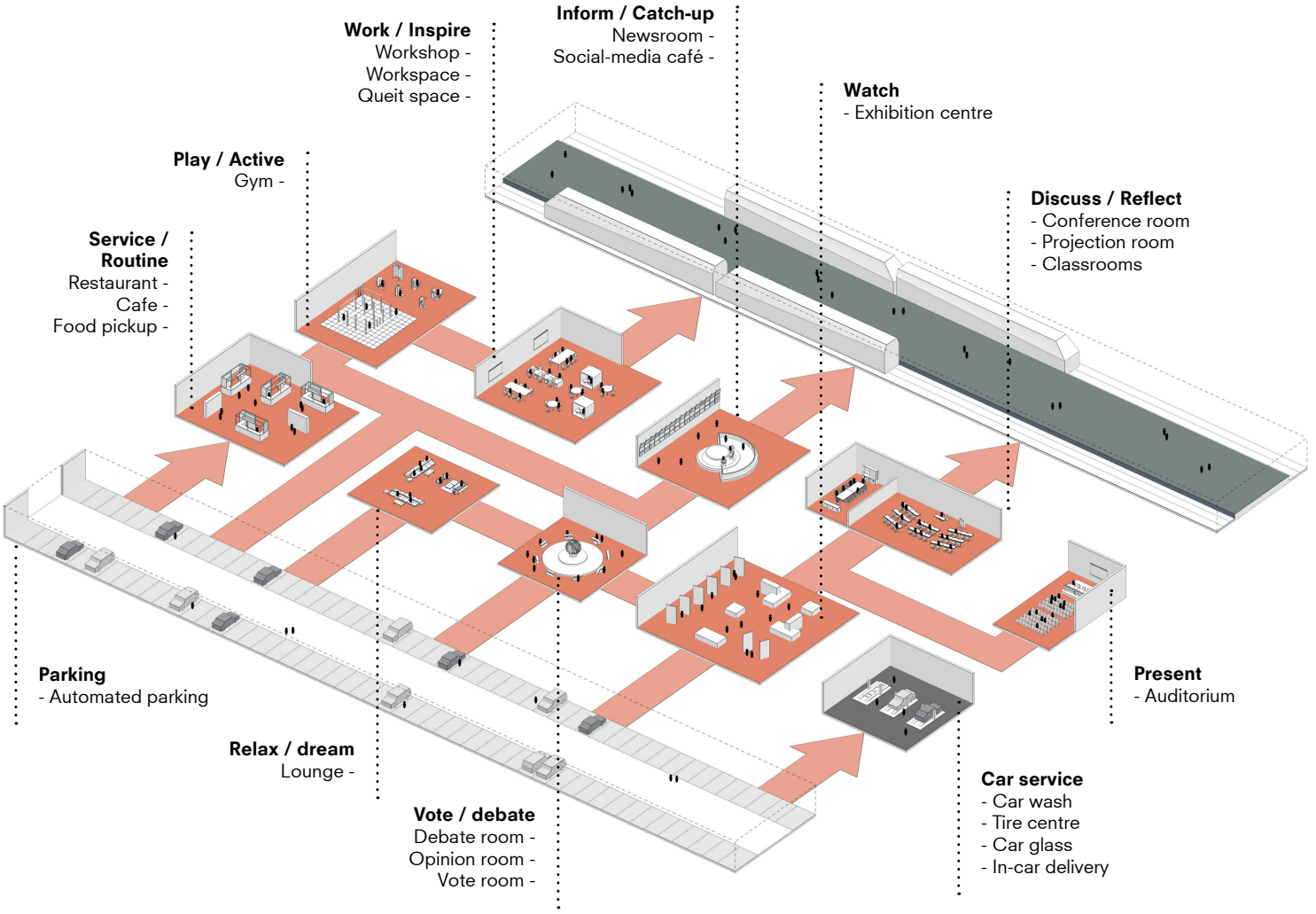



**User experience**




**Building configuration**

# PERSONALISED EXPERIENCE PLATFORM

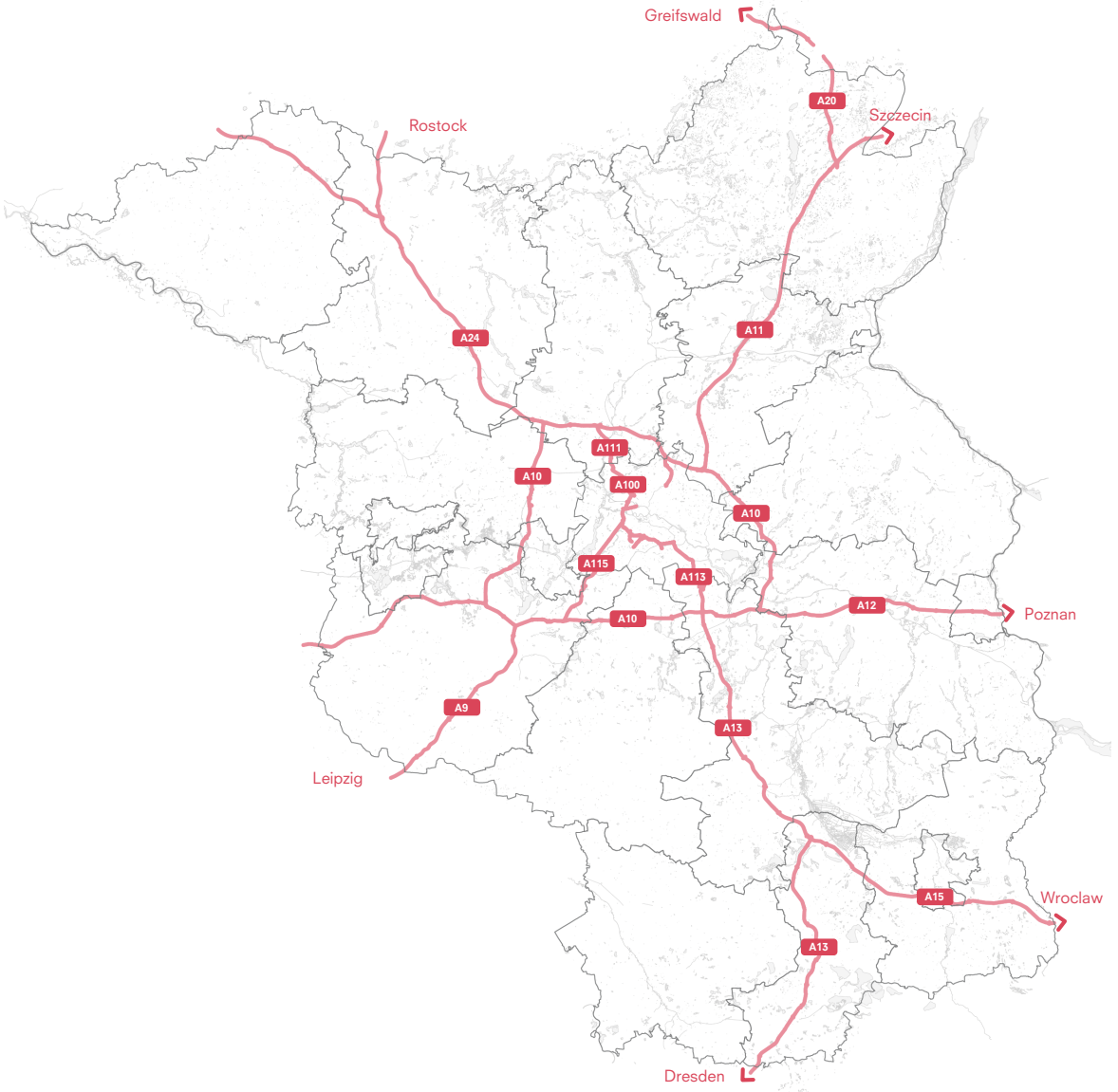


# RESEARCH QUESTION


**HOW CAN AUTOMATION TECHNOLOGIES BE INTEGRATED IN ARCHITECTURAL DESIGN TO POSITIVELY INFLUENCE USER EXPERIENCE AND OPTIMIZE THE USE OF SPACE?**

# DESIGN BRIEF

# CAR NETWORK




**Bundesautobahn:**

- A9 Bundesautobahn 9 45.000 - 60.000
- A10 Bundesautobahn 10 60.000 - 75.000
- A11 Bundesautobahn 11 < 30.000
- A12 Bundesautobahn 12 30.000 - 45.000
- A13 Bundesautobahn 13 45.000 - 60.000
- A15 Bundesautobahn 15 < 30.000
- A19 Bundesautobahn 19 < 30.000
- A20 Bundesautobahn 20 < 30.000
- A24 Bundesautobahn 24 30.000 - 45.000

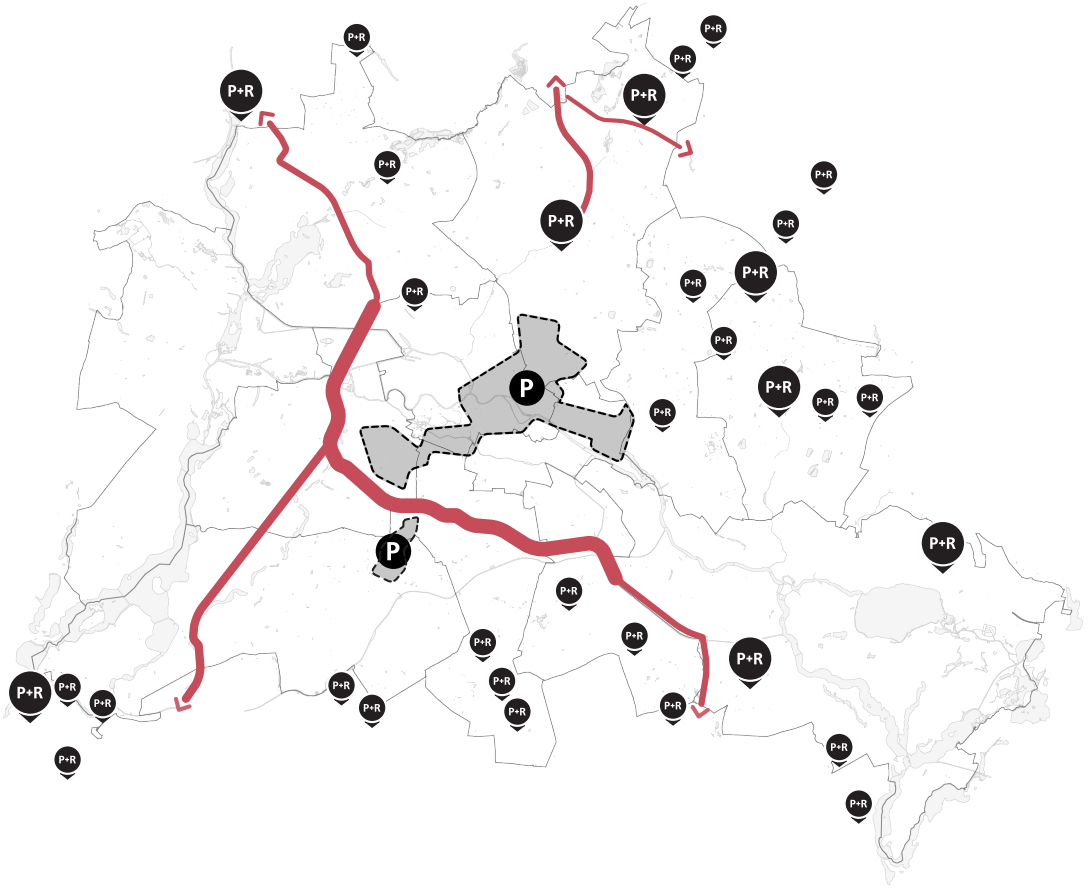
**Legend:**

- Motorway

**Brandenburg road network**
Scale 1 : 400.000

Design Brief

# PARKING AVAILABILITY

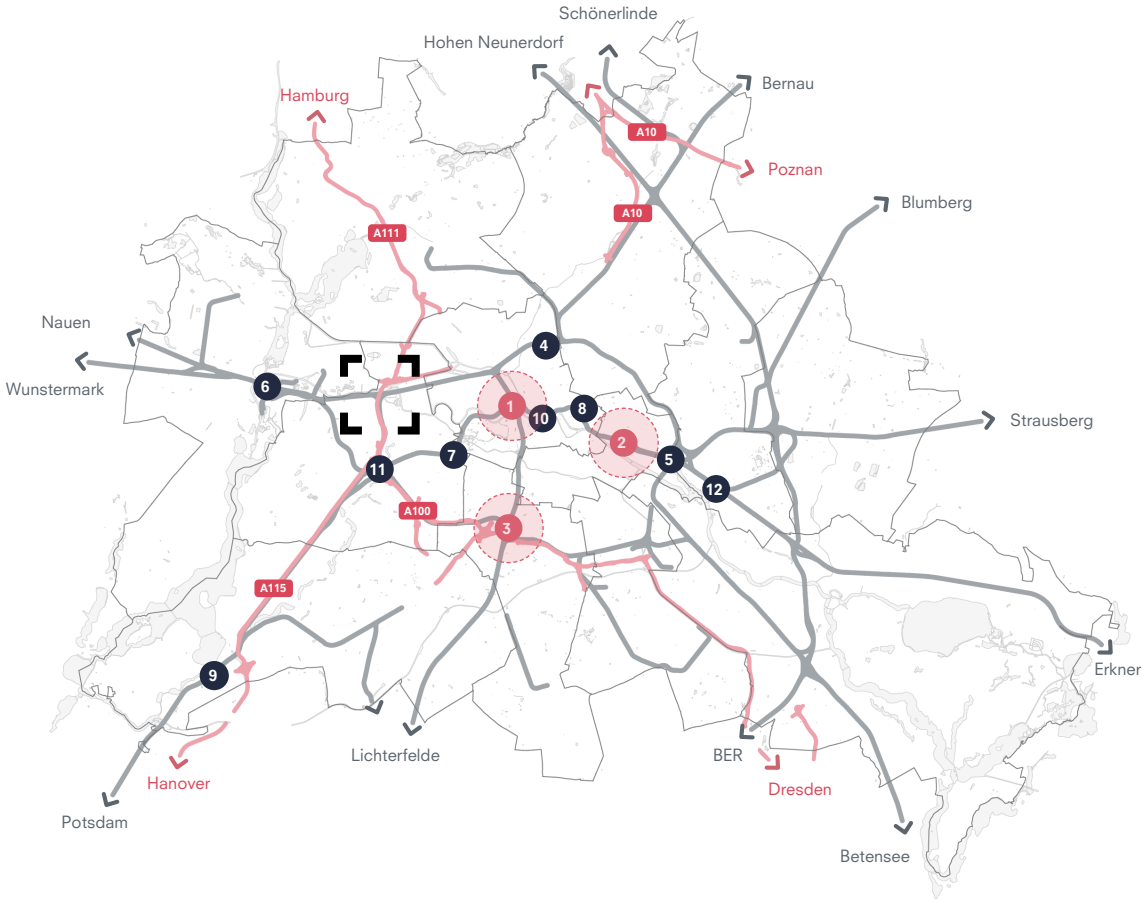



**Legend:**

- 70.000 cars a day
- 50.000 cars a day
- 30.000 cars a day
- < 100 parking spots
- < 100 parking spots
- Parking
- Parking zones

**Parking and road network**
Scale 1 : 400.000

# TRAIN AND CAR NETWORK

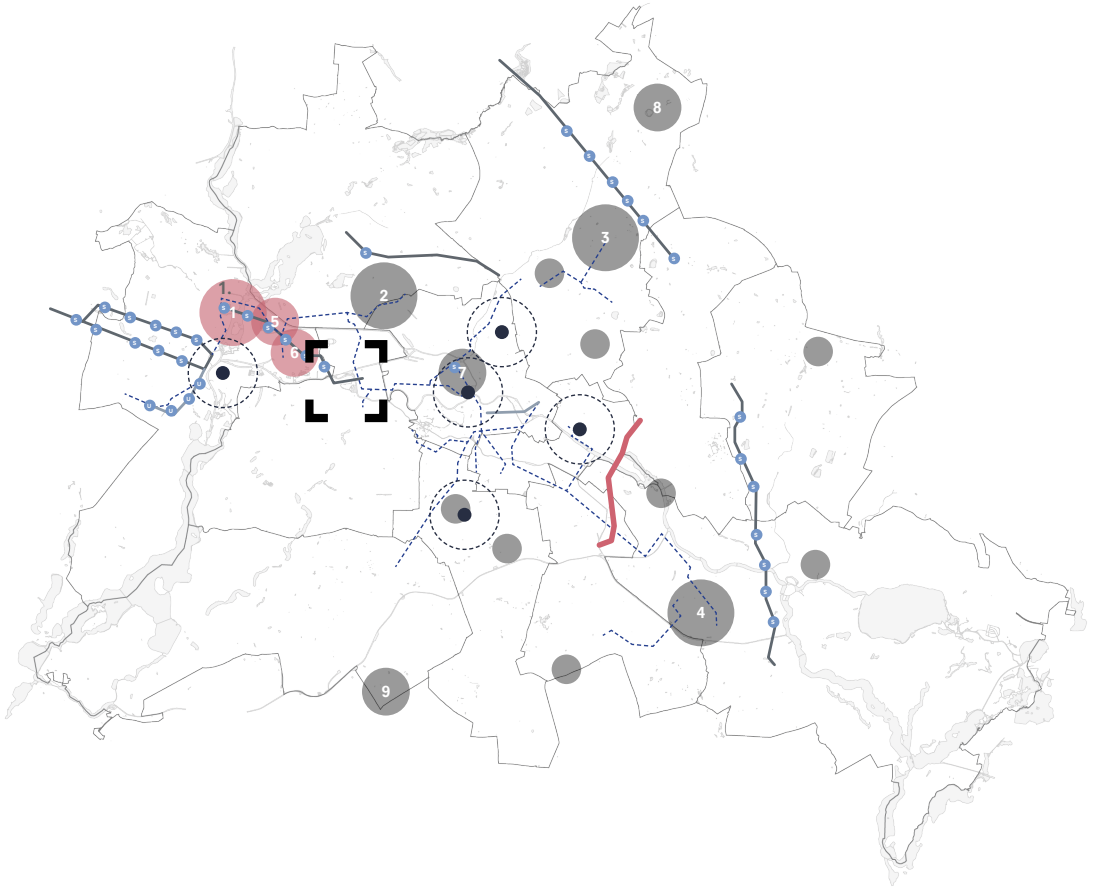



**Legend:**

- Park and ride stations
- Railway stations
- Road network
- Road network
- U-Bahn network

**Inter modality locations**
Scale 1 : 400.000

# URBAN DEVELOPMENT

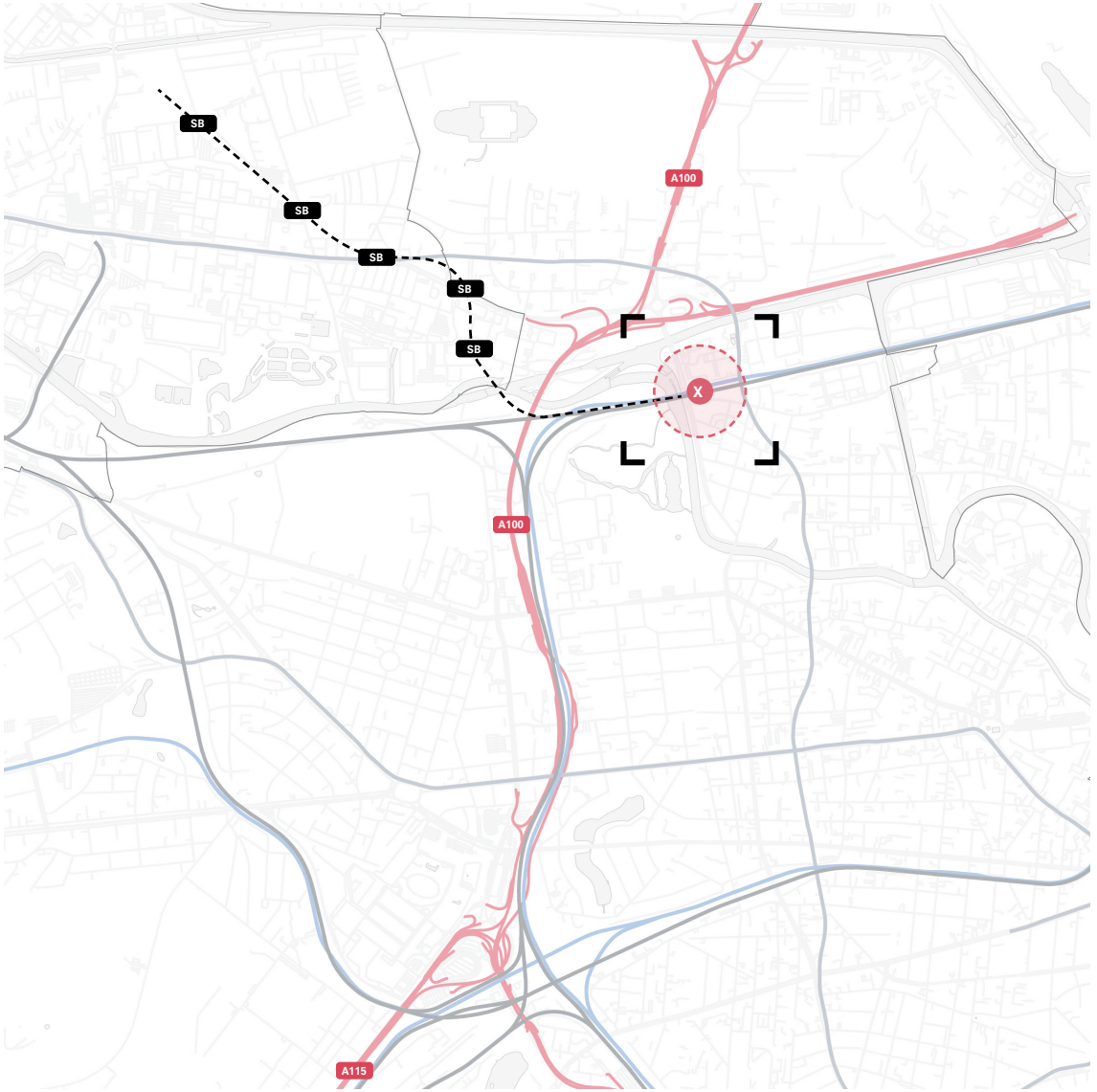



**Legend:**

- New U-bahn route
- New S-bahn route
- New motorway
- New tram routes
- Main train stations
- S U Possible new sub stations
- City development, 2000 dwellings
- Site location

**Brandenburg rail network**
Scale 1 : 400.000

# INFRASTRUCTURE NETWORK

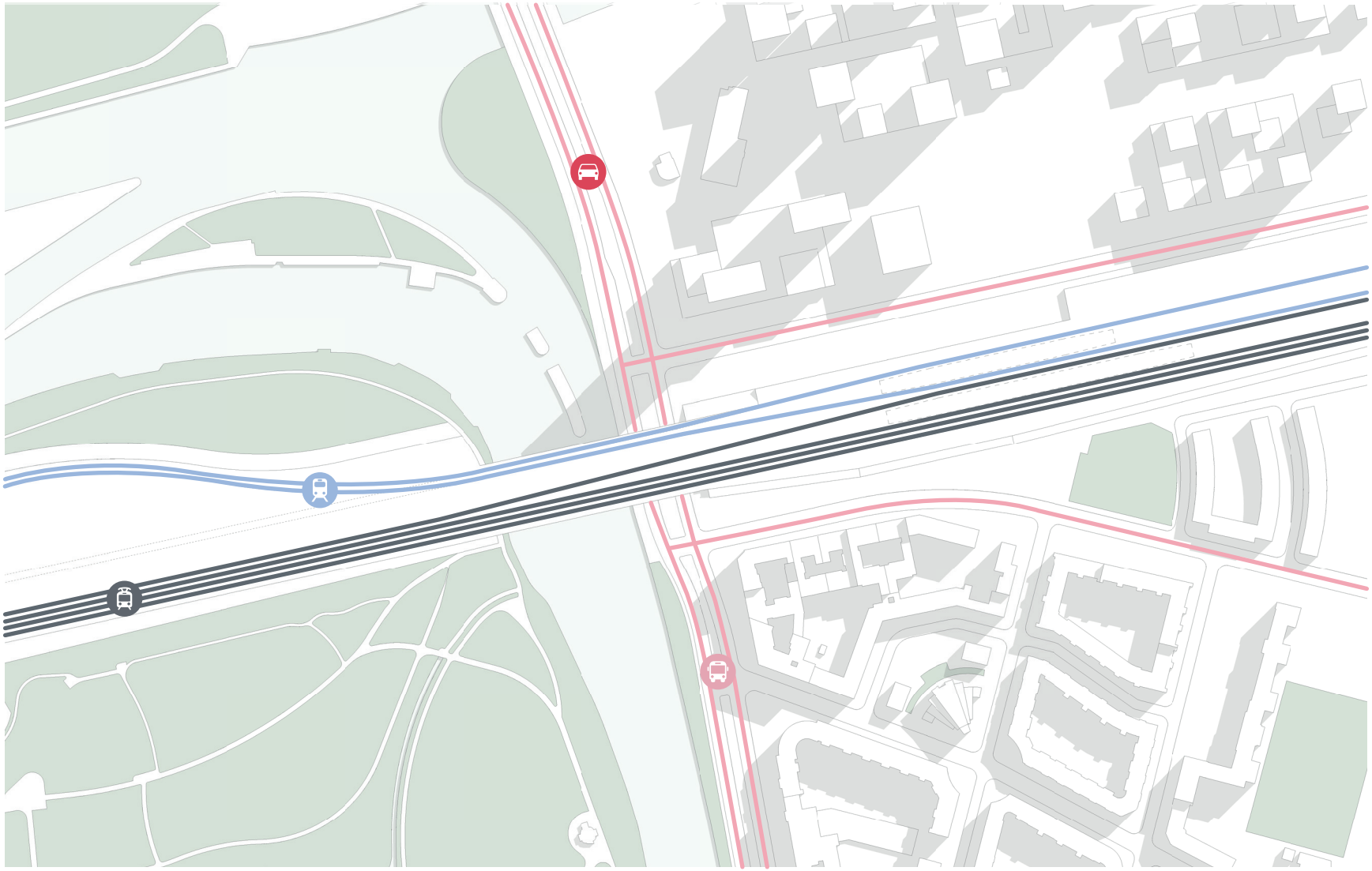



**Legend:**

- S-Bahn-, U-Bahn-, Train station
- Site location
- Motorway
- Primary- and secondary roads
- U-Bahn network
- S-Bahn network
- Railway

**Public transportation network**
Scale 1 : 50.000

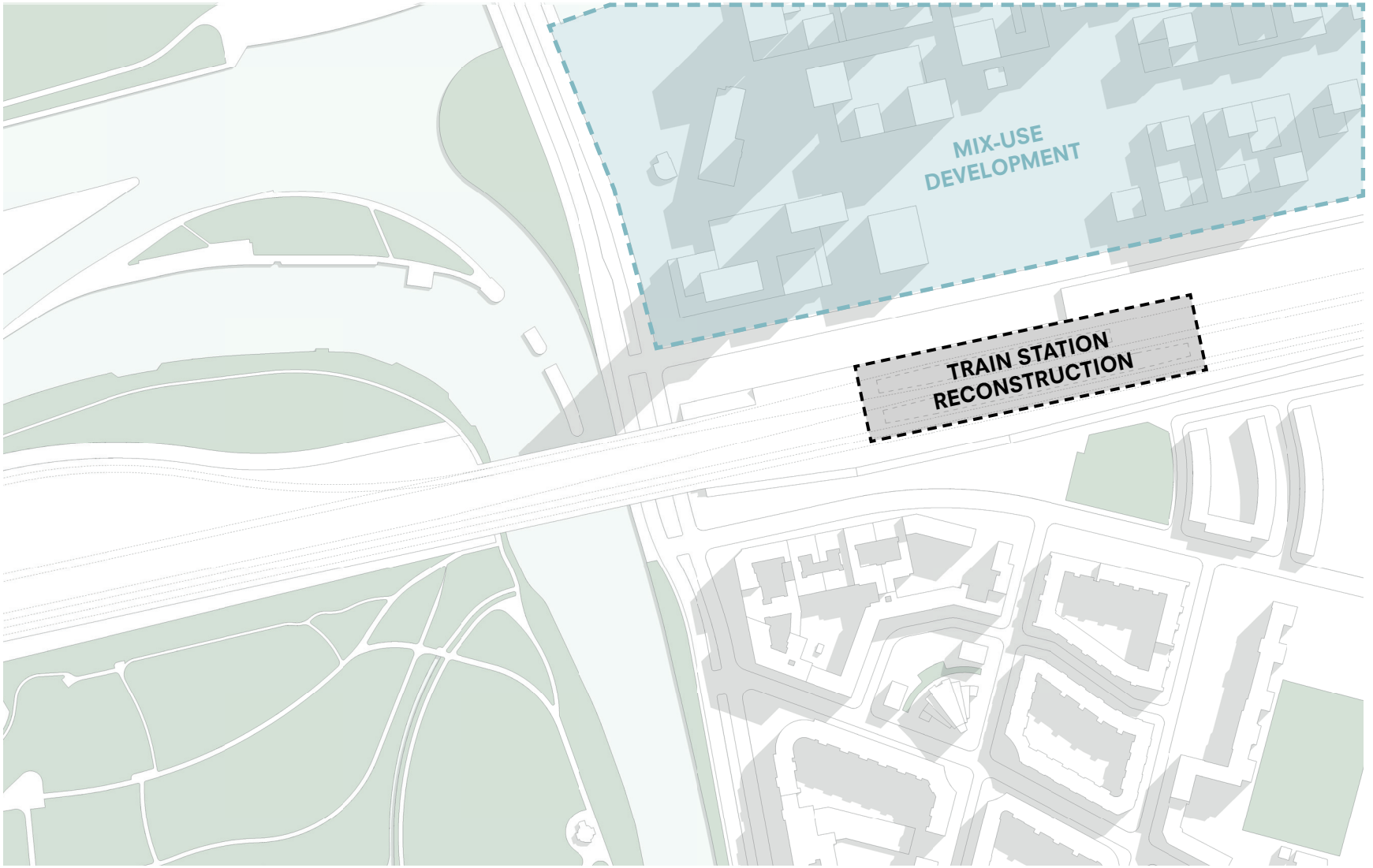
# EXISTING INFRASTRUCTURE



**Existing infrastructure connections.**

Design Brief

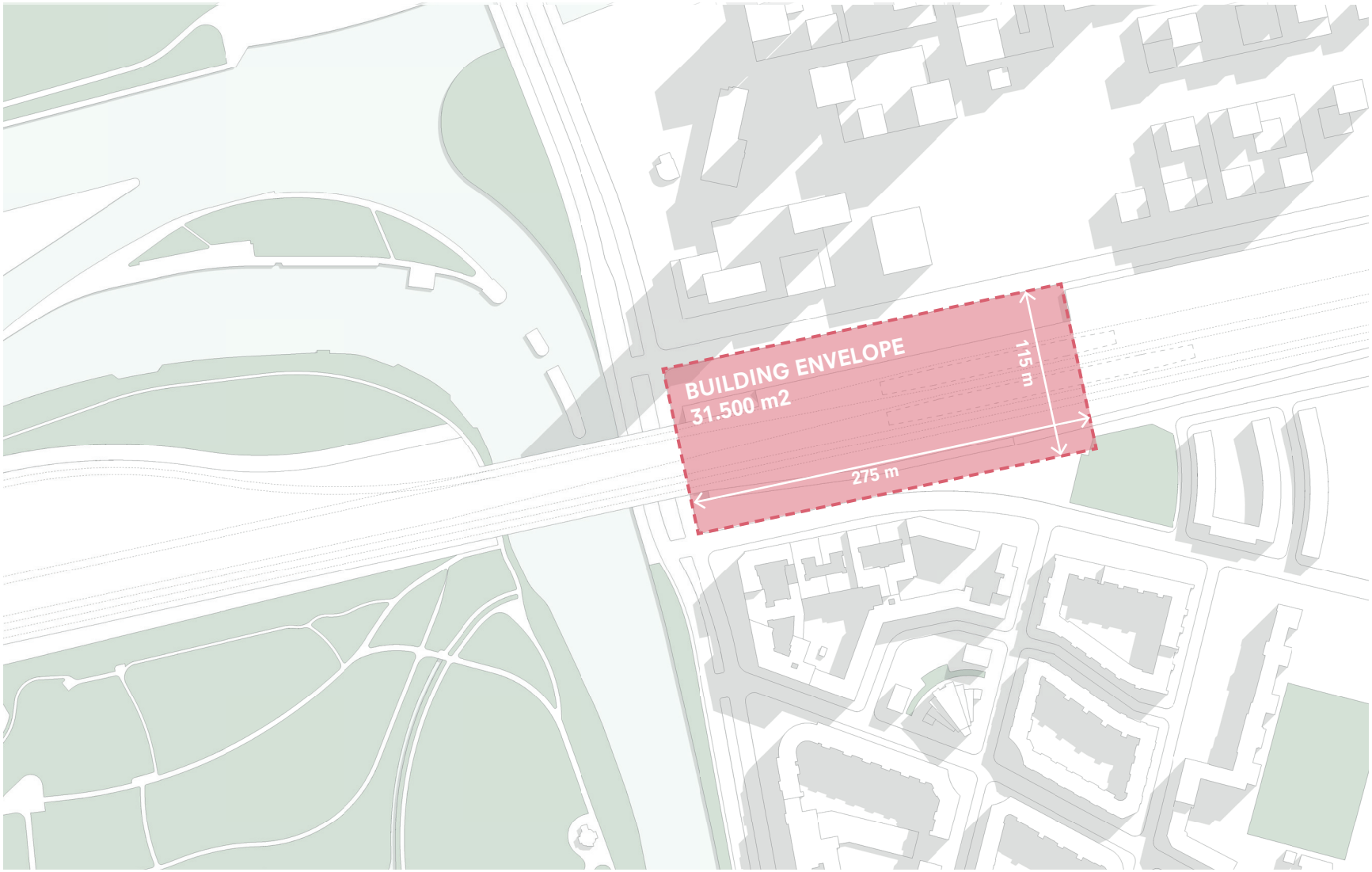
# REDEVELOPMENT




**Reconstruction of the station area.**

Design Brief

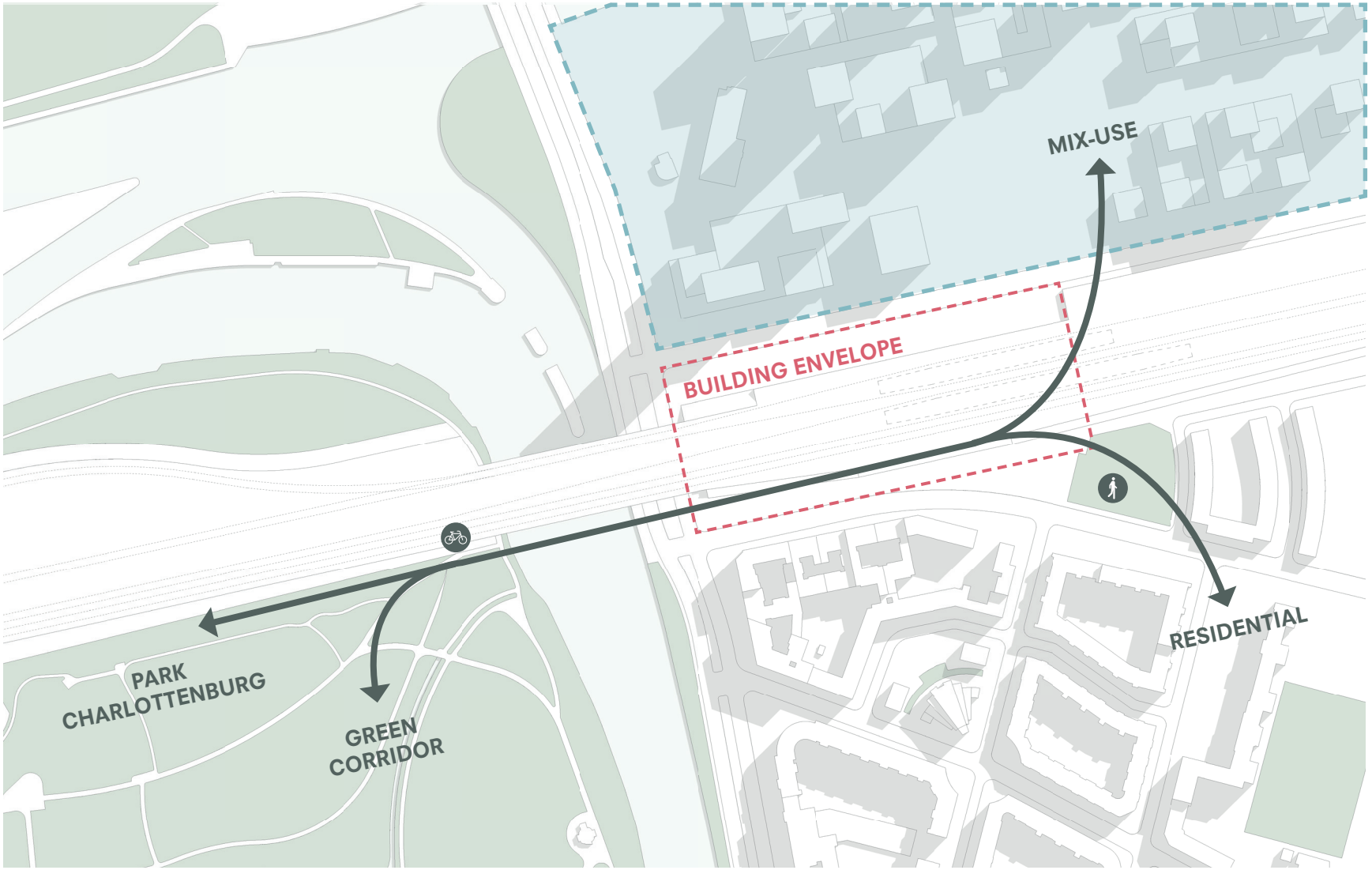
# BUILDING ENVELOPE




**A plot on the interconnection between urban, mobility and environment.**

Design Brief

# URBAN IMPLEMENTATION




**Strengthening urban relationships.**

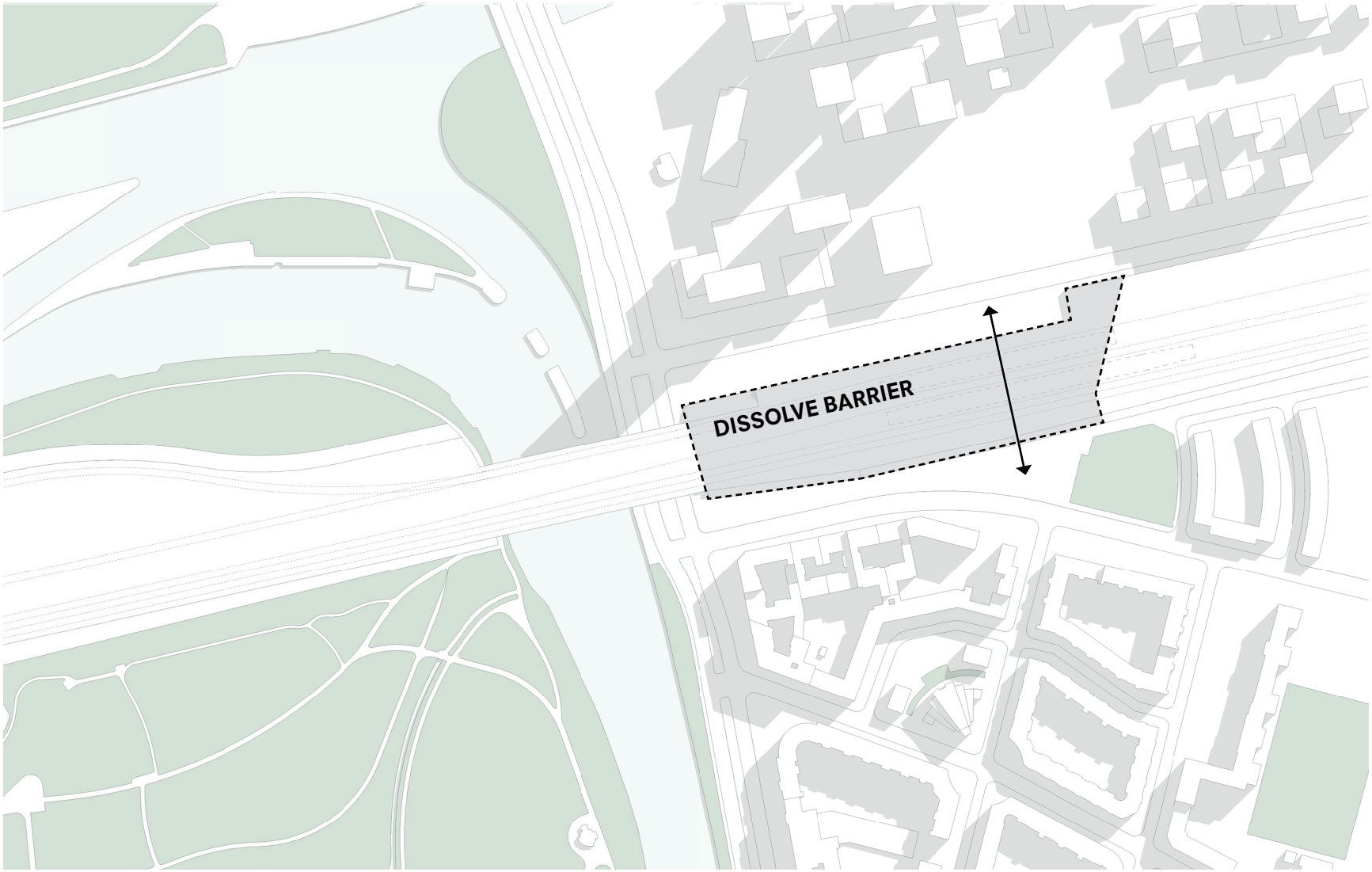
# SITE CONDITIONS


**Park Charlottenburg**


**Jungfernheide**

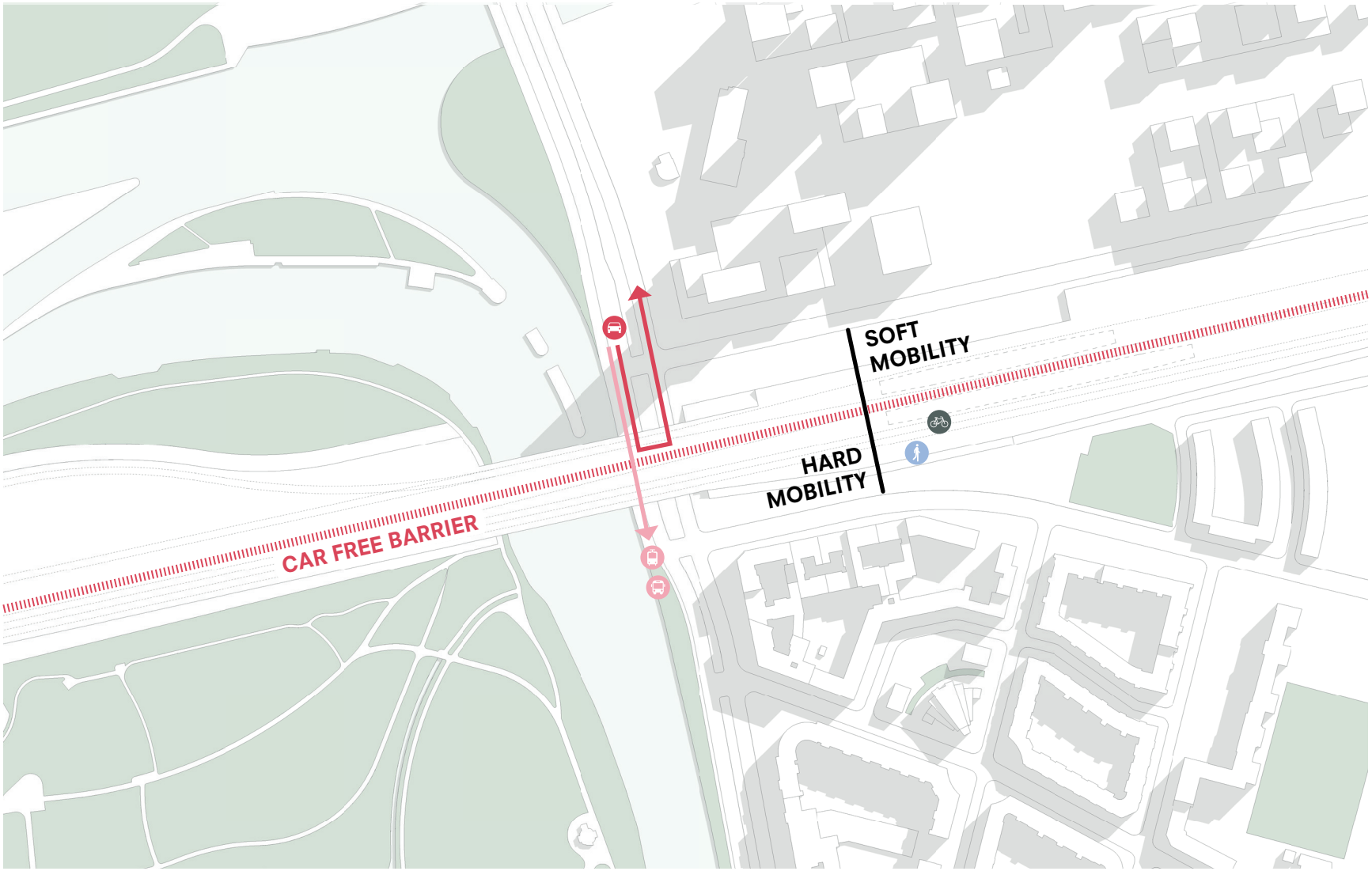

**Redevelopment**

# SITE AMBITIONS




**Dissolving the railway barrier.**

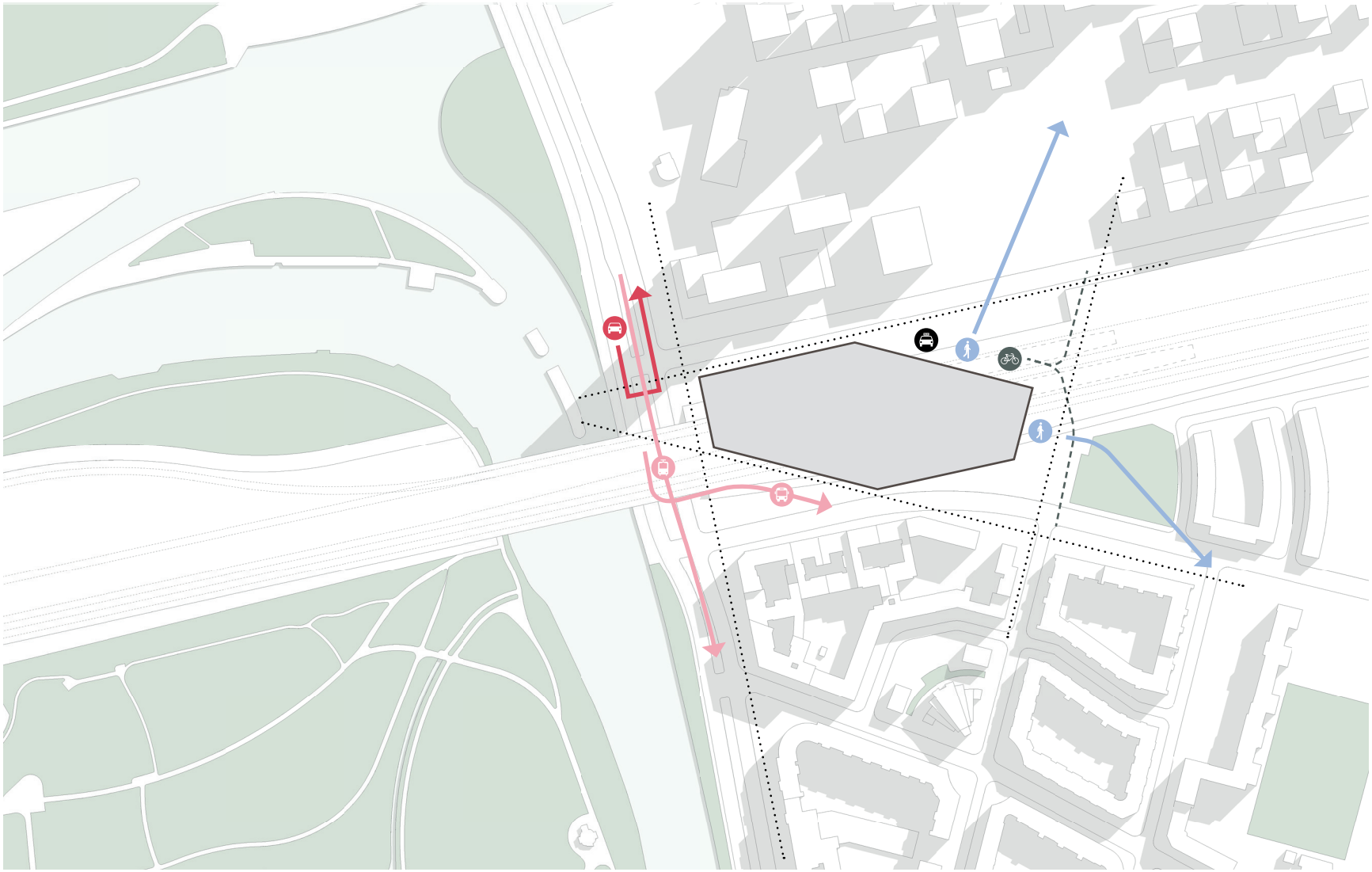
# SITE AMBITIONS




**Using the station as a separator.**

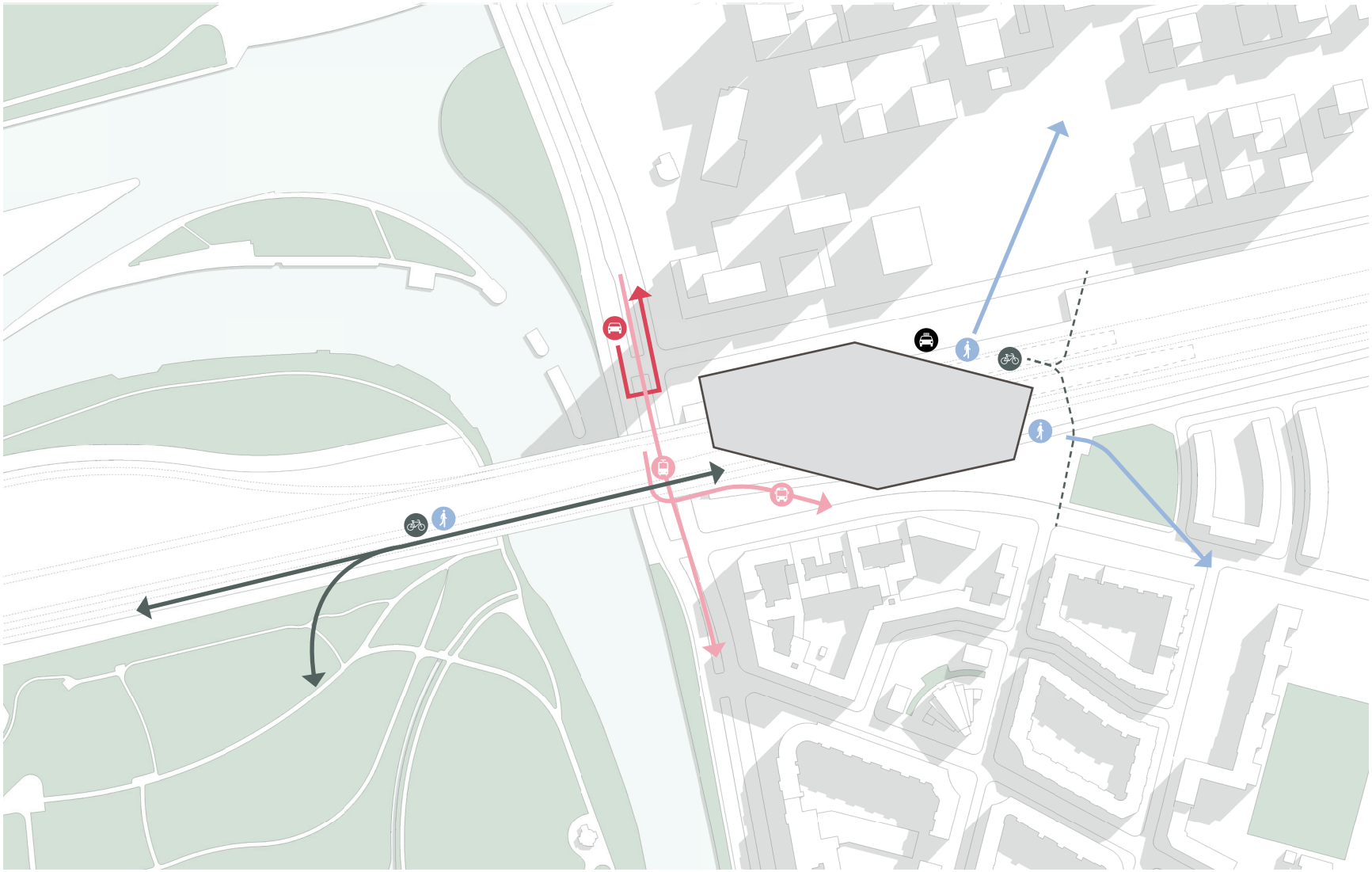
Design Brief

# SITE AMBITIONS



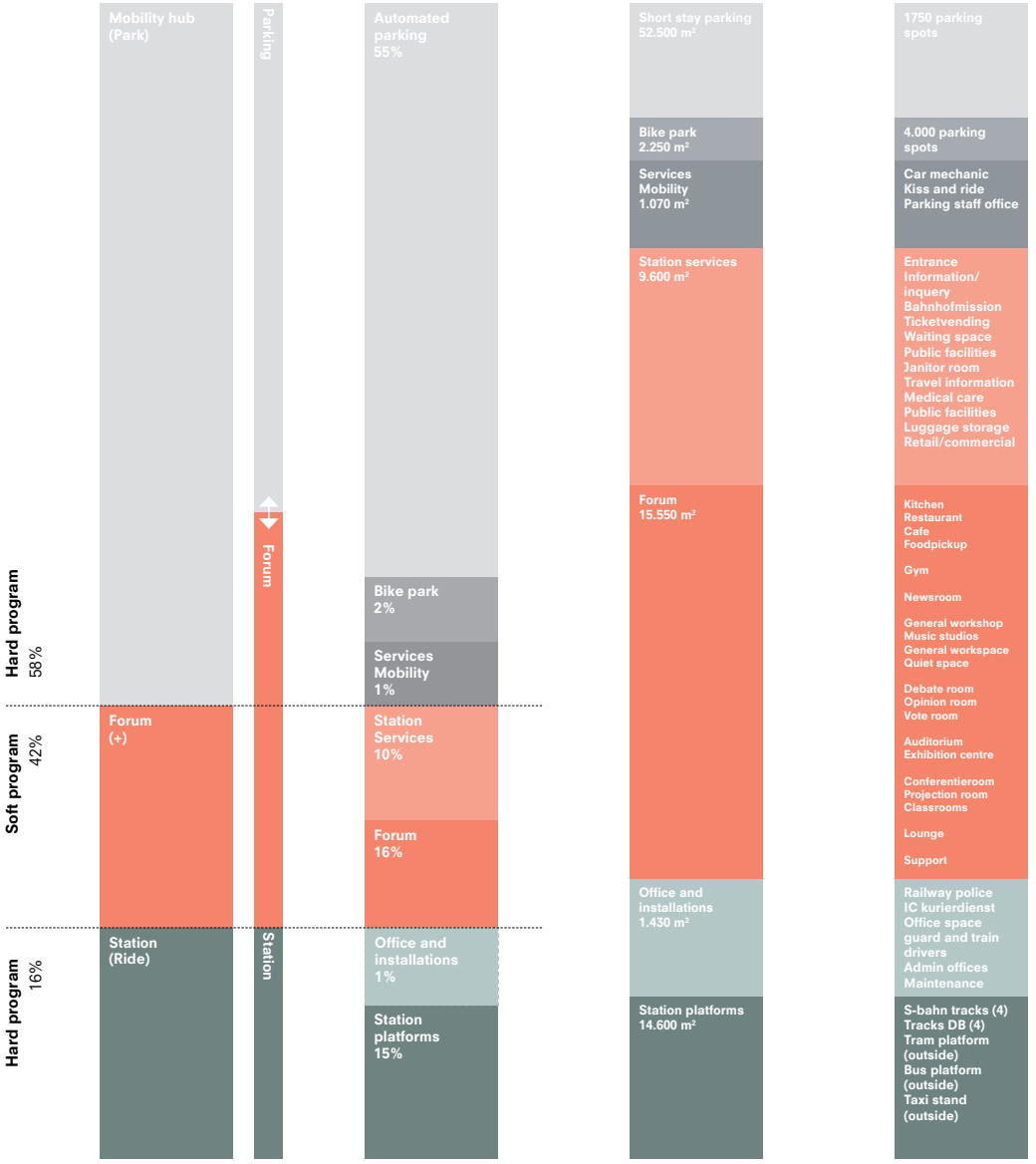
**Organised and shaped by its surroundings.**

# SITE AMBITIONS



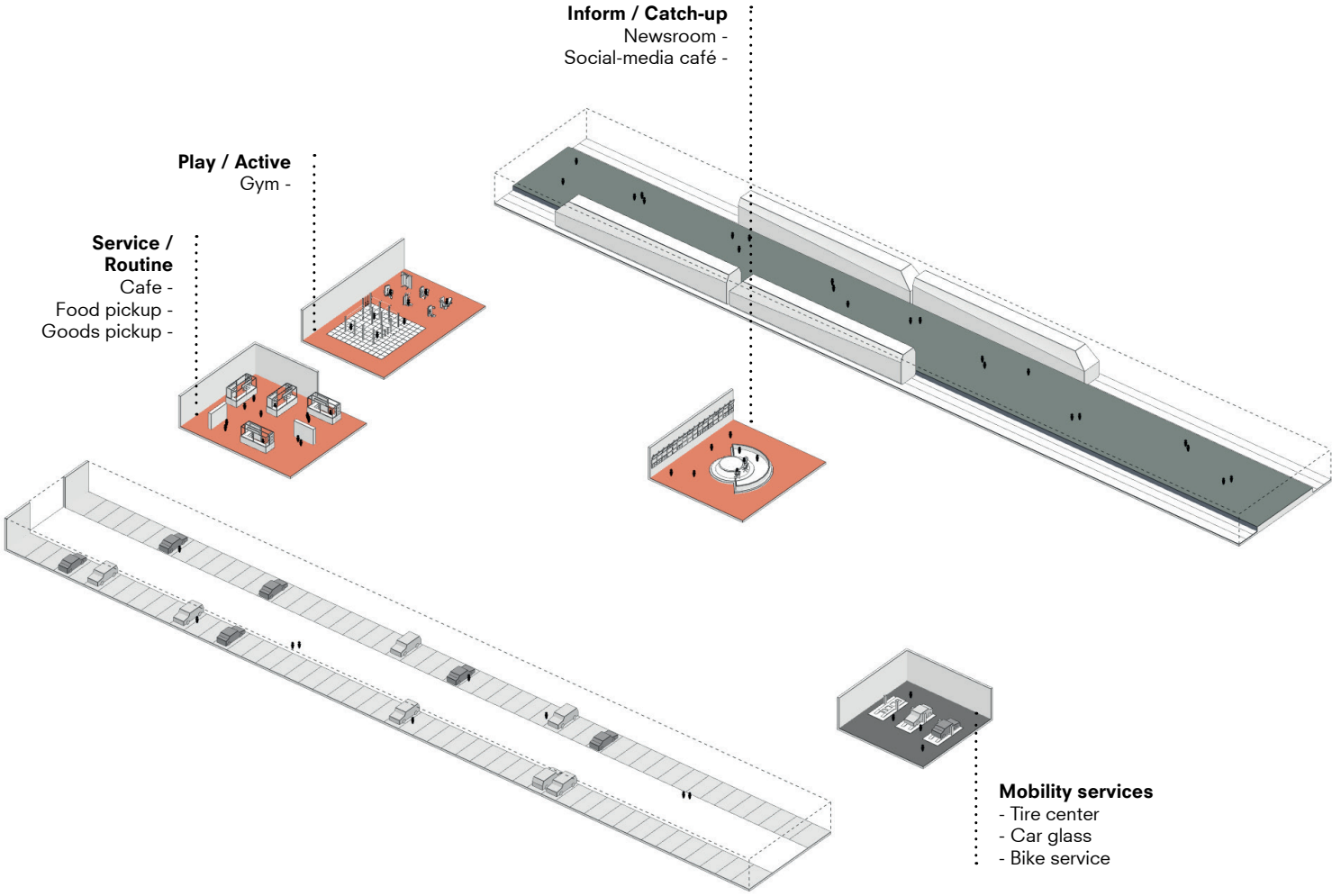
**Underground rail and existing bridge as a green corridor.**

# PROGRAM BREAKDOWN



Design Brief

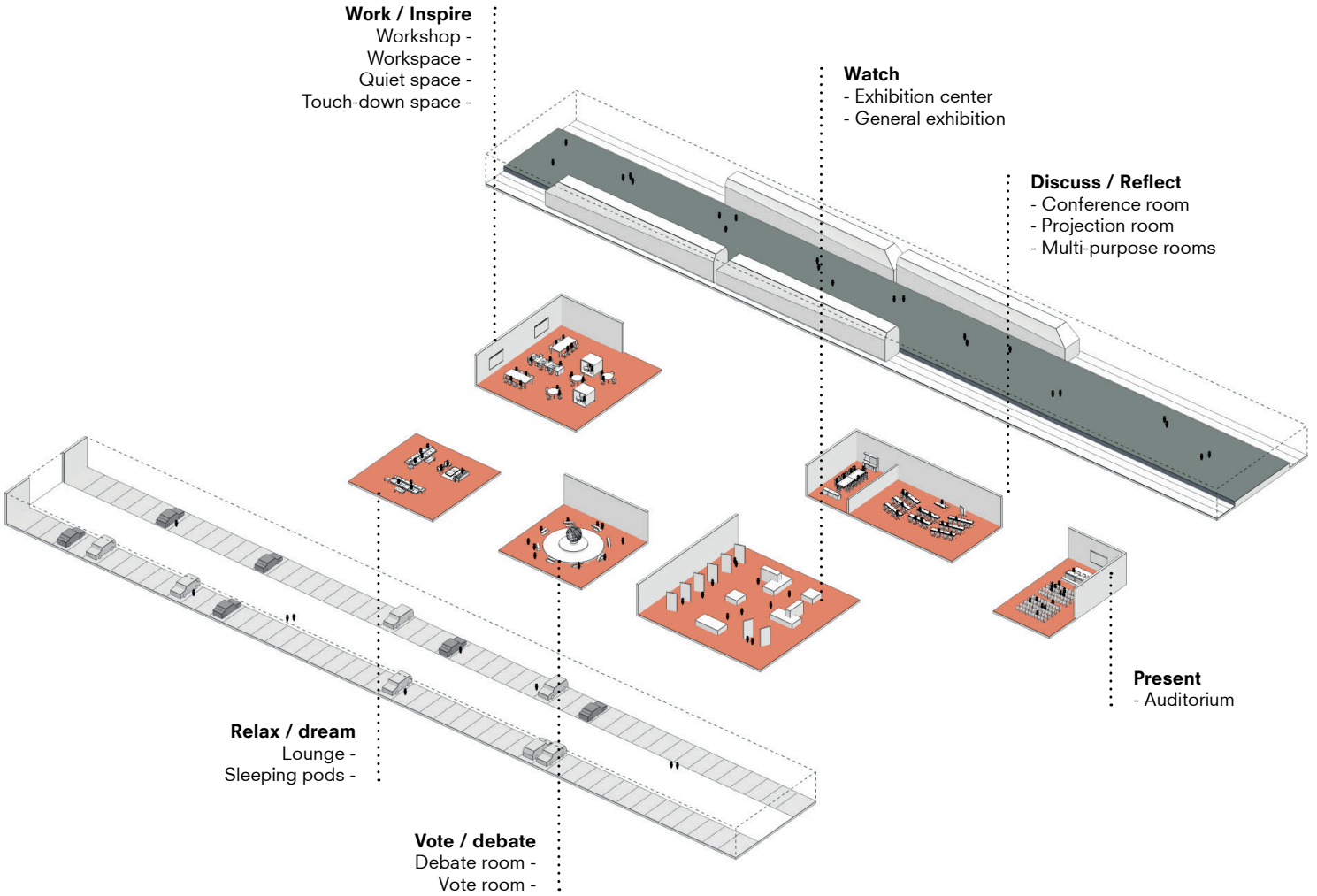
# SERVICE RELATED




**Shortening transition times.**

Design Brief

# EXPERIENCE RELATED



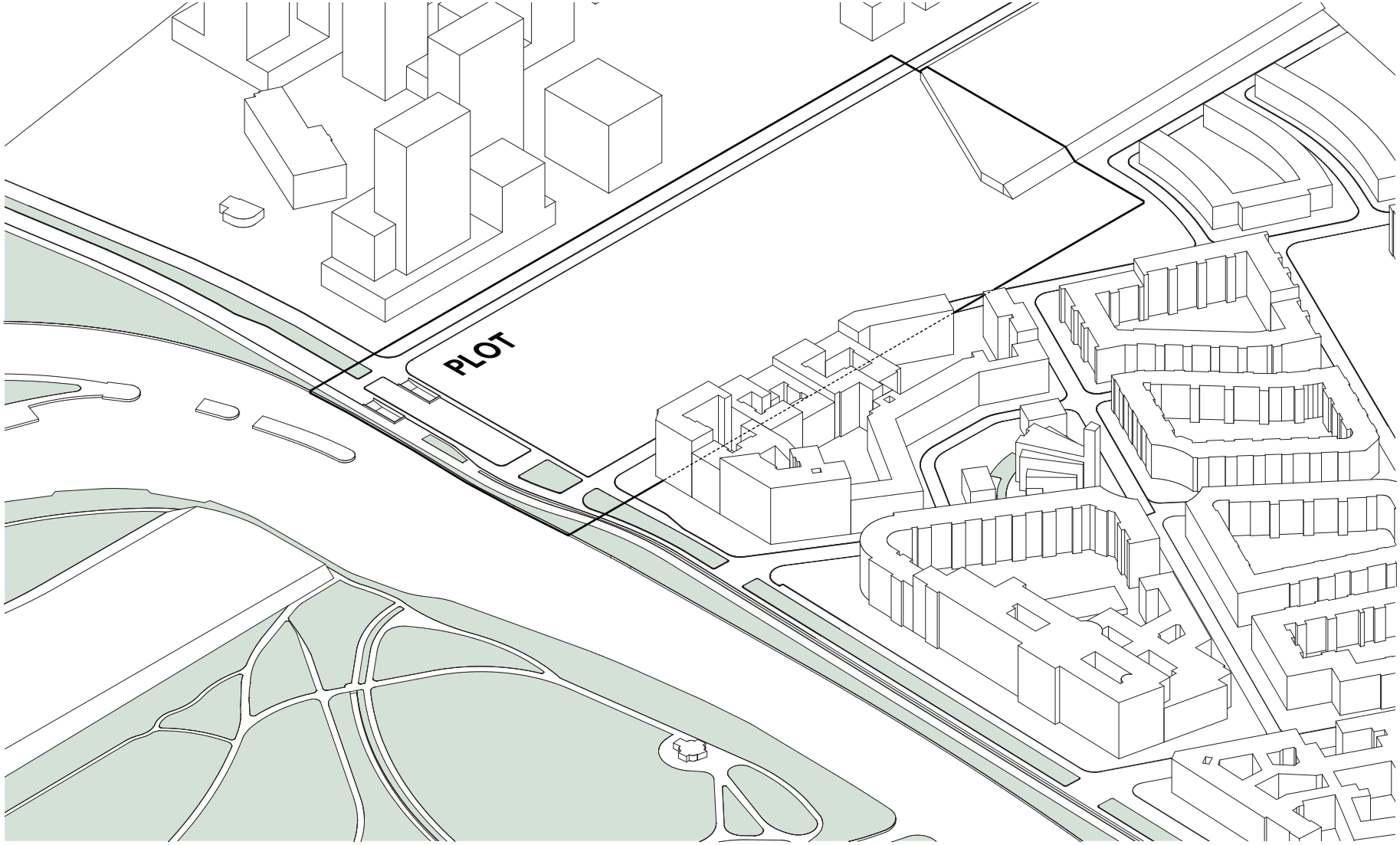

**Adding functional commuter services.**

# PROGRAM RELATIONS


**The program is organised on time spent at the station.**

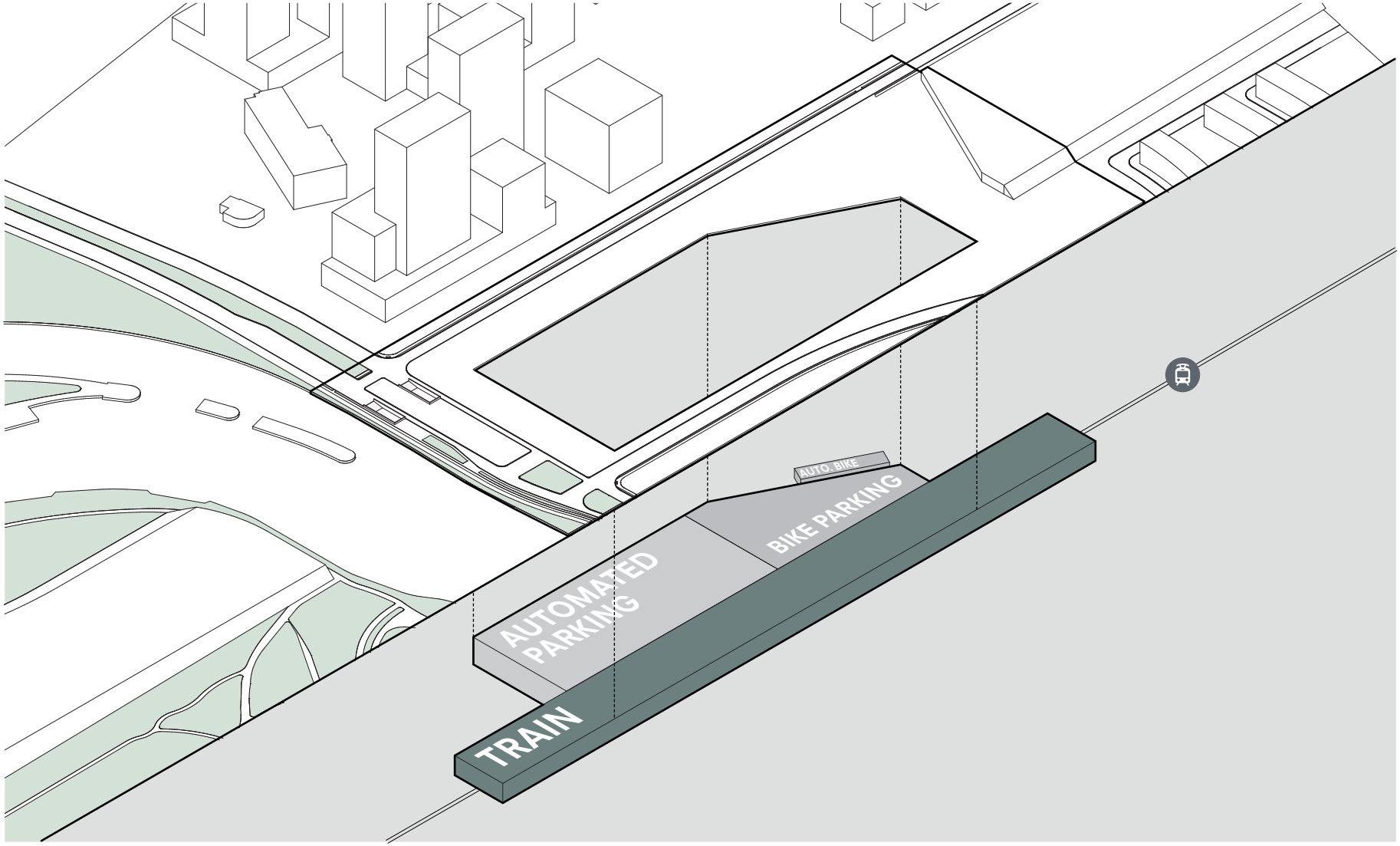
# CONCEPT

# BUILDING CONCEPT



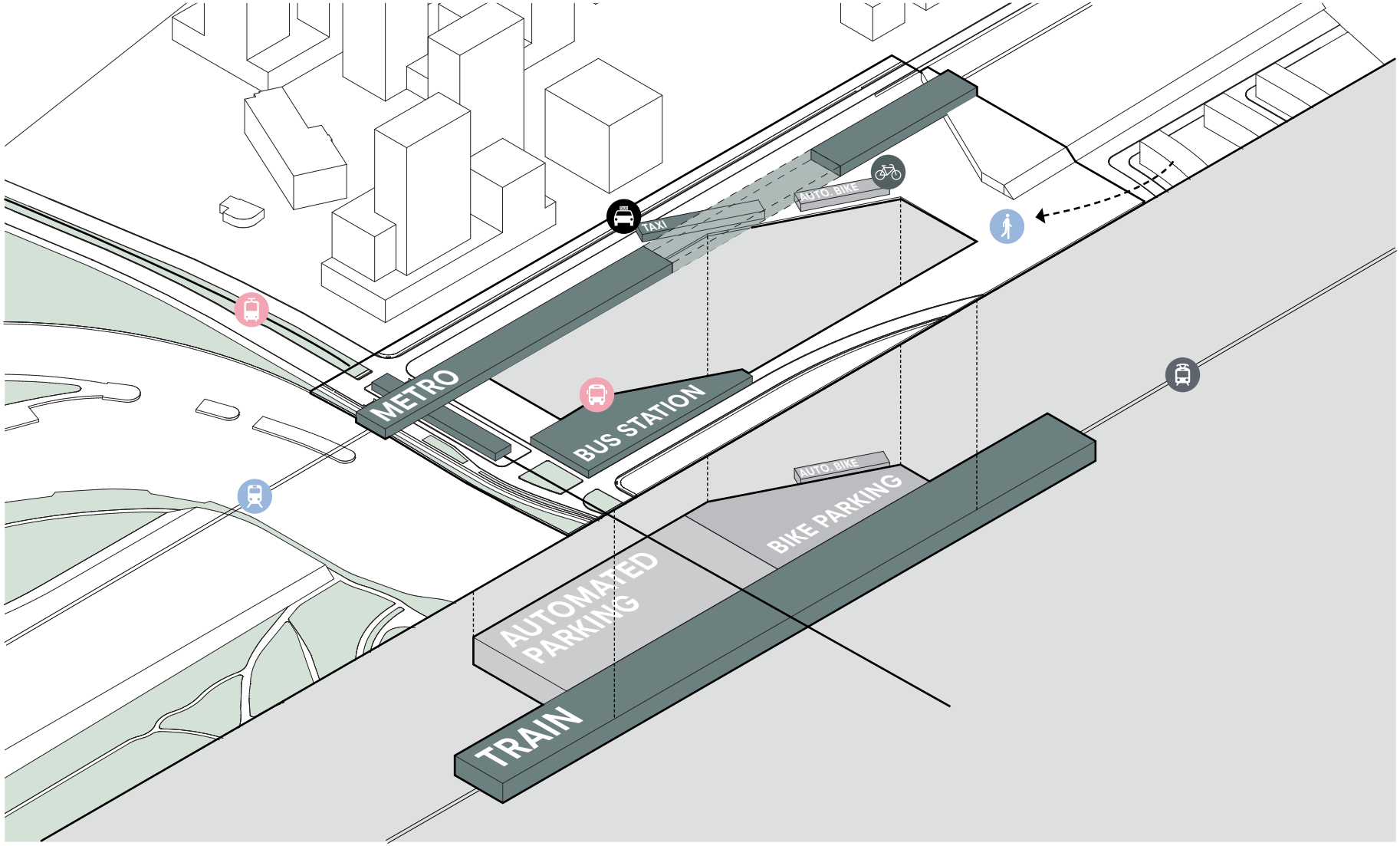

**Building plot.**

# BUILDING CONCEPT




**Hiding the hard infrastructure on site.**

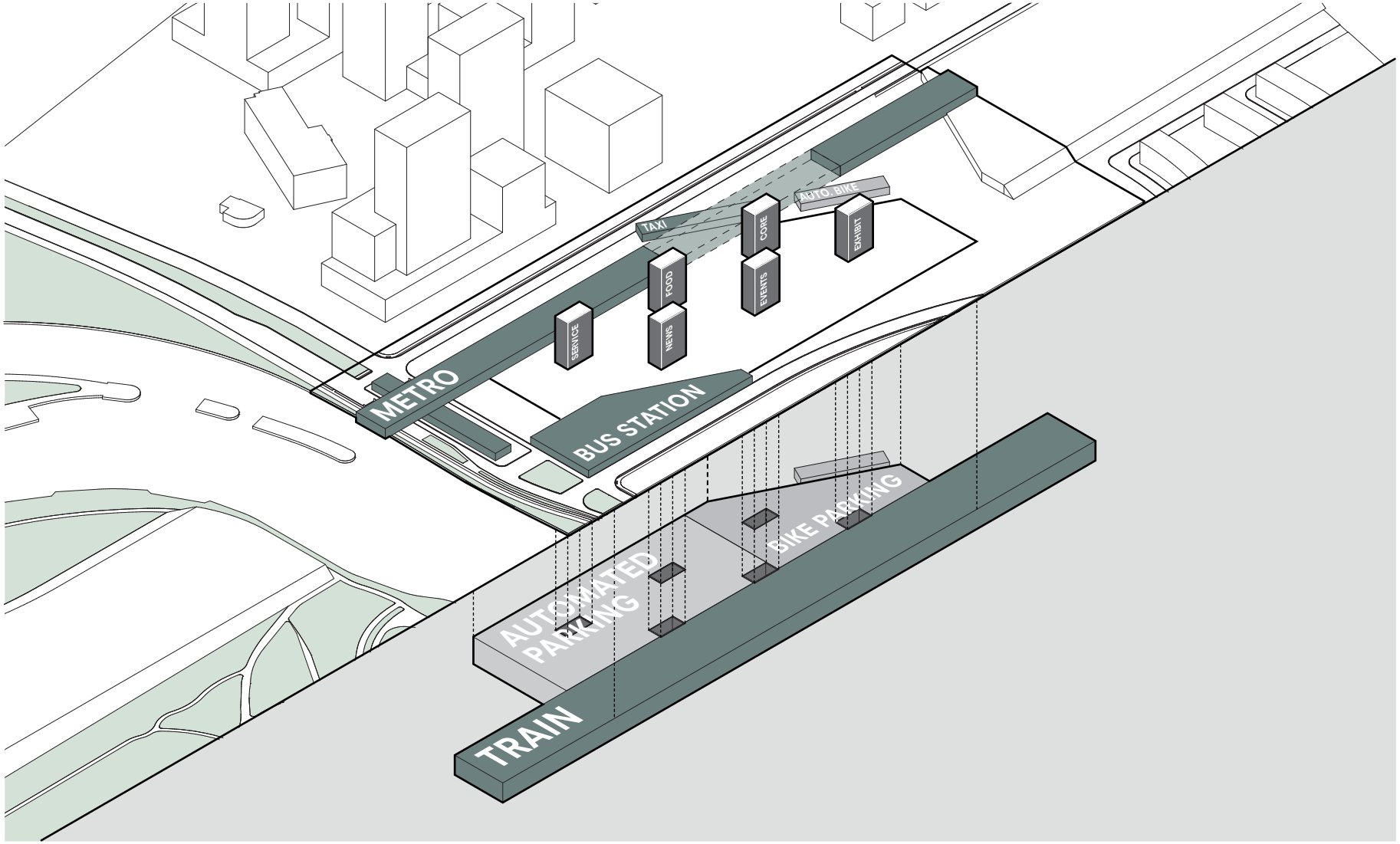
# BUILDING CONCEPT




**Other modes of transportation are placed around the central building zone.**

Design intentions

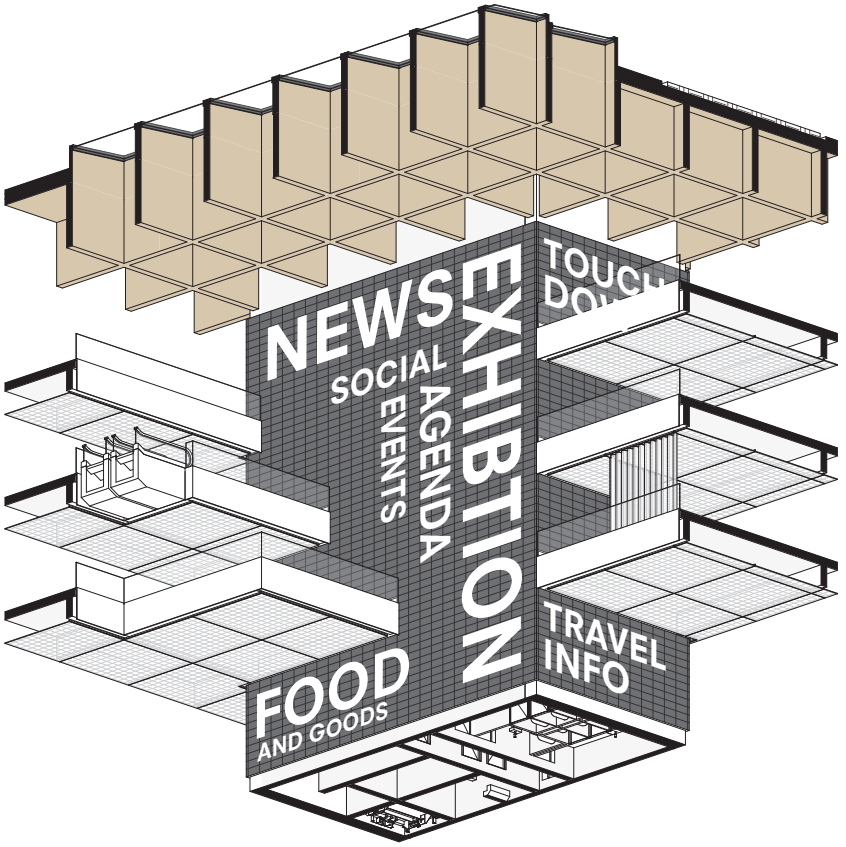
# BUILDING CONCEPT




**Building service cores are placed in the middle of the plot.**

Design intentions

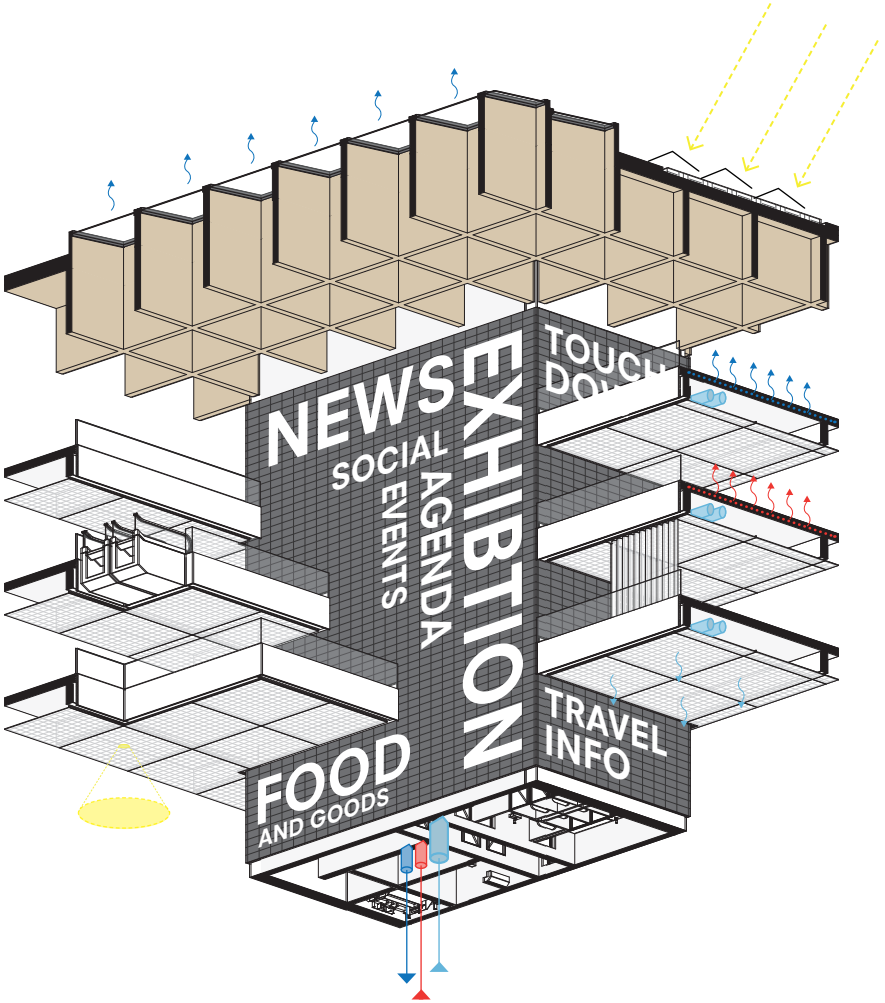
# SERVICE CORE




**Service core is a way of showing and serving the user throughout their journey.**

Design intentions

# CLIMATE SYSTEM

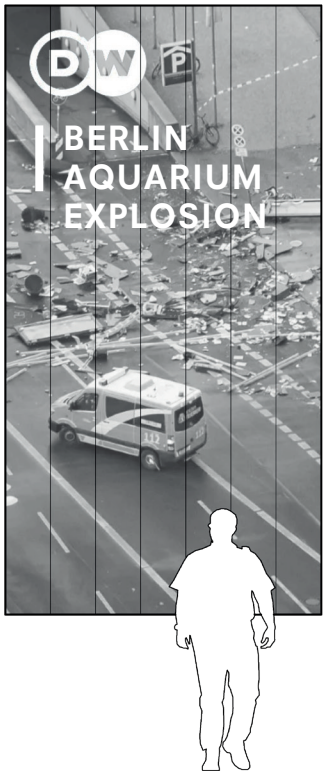



**But also integrates most climate and technical systems in one system.**

Design intentions

# LED SCREEN INTERACTION

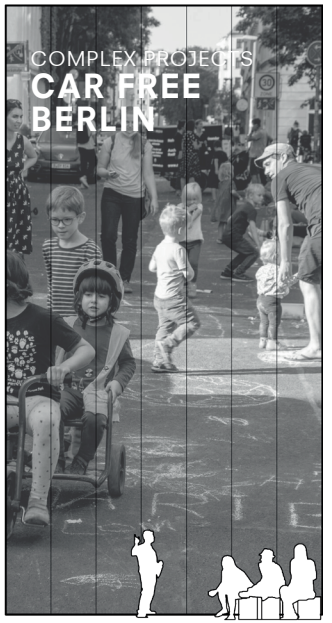
**Catch-up**
Catching-up with news




**Service**
Daily-routine


**Event**
Display events

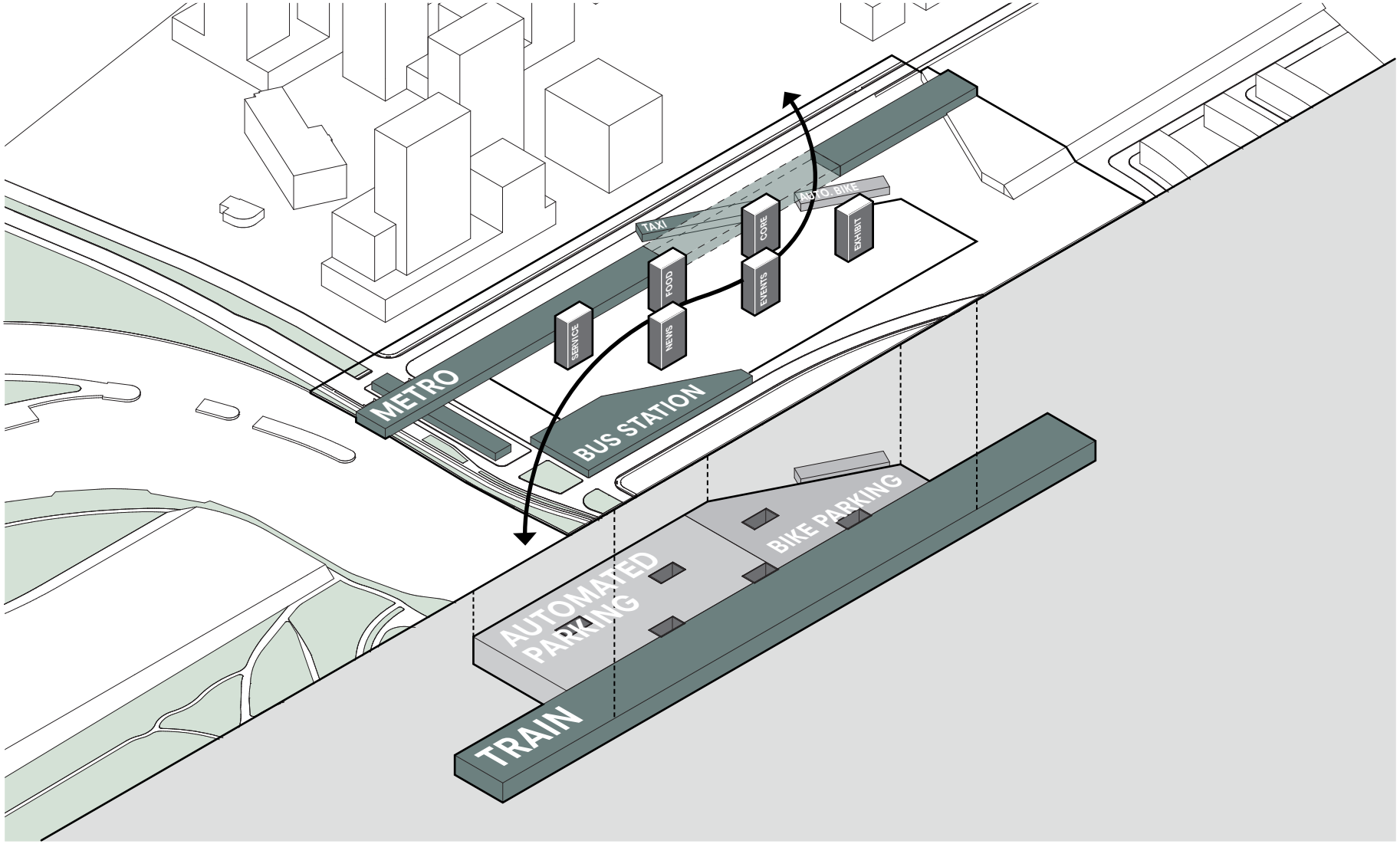

**Presentation**
Personal use




**The core can serve the user by catching up, personal use, events and daily routine service.**

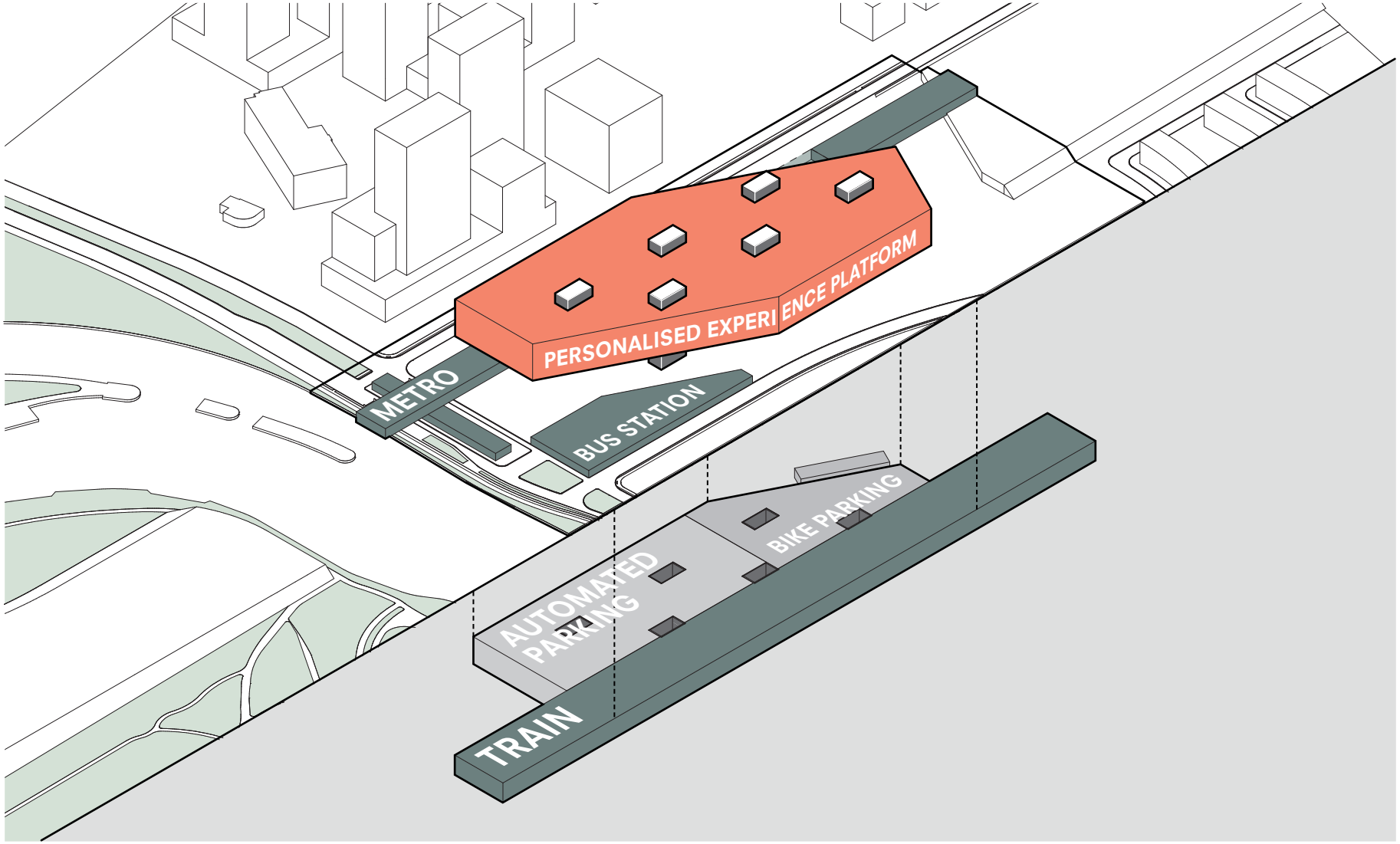
Design intentions

# BUILDING CONCEPT



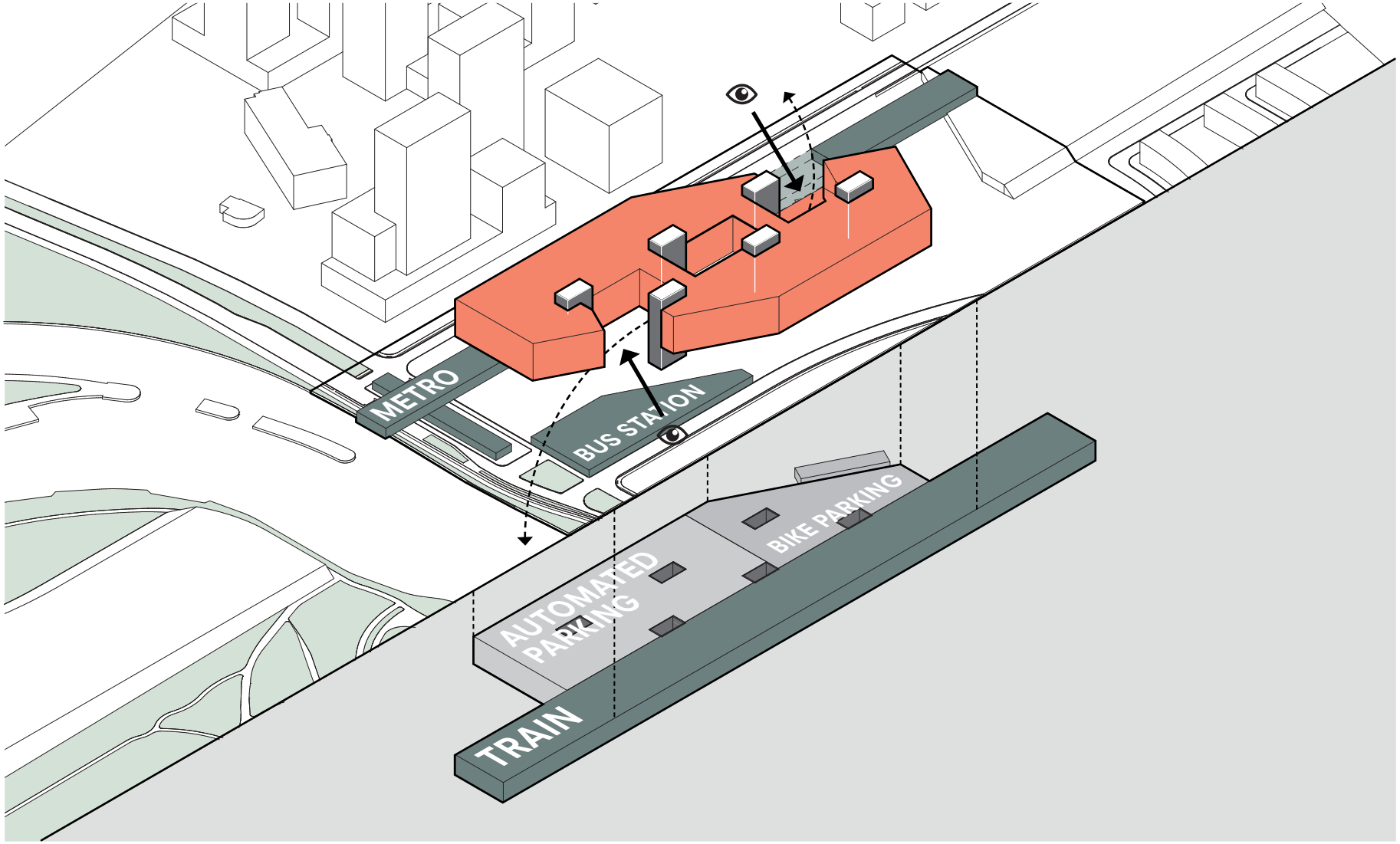

**The main circulation flow in the building goes through the central zone between the service cores.**

# BUILDING CONCEPT



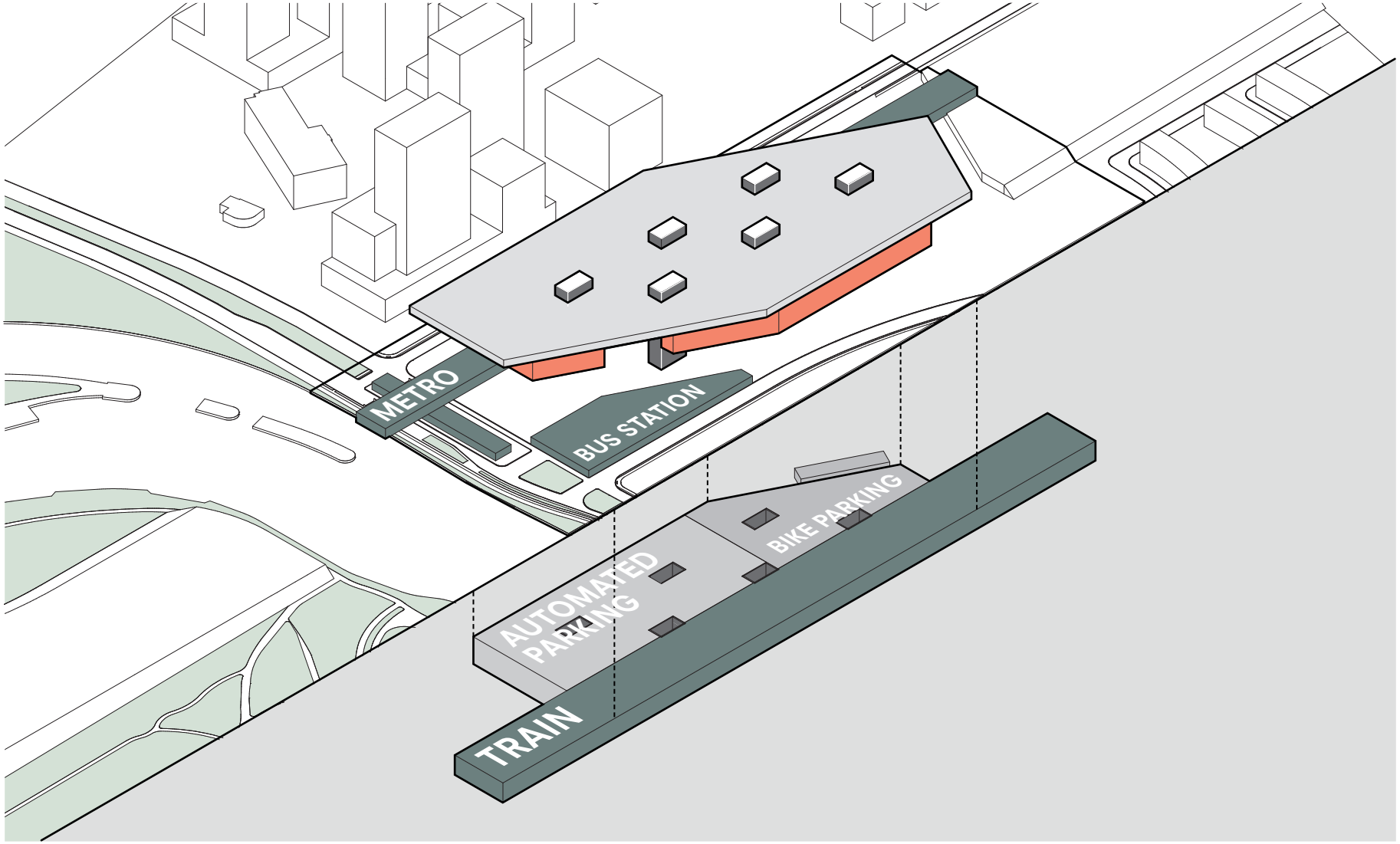

**The personalised experience platform (forum) is attached to the service cores.**

# BUILDING CONCEPT



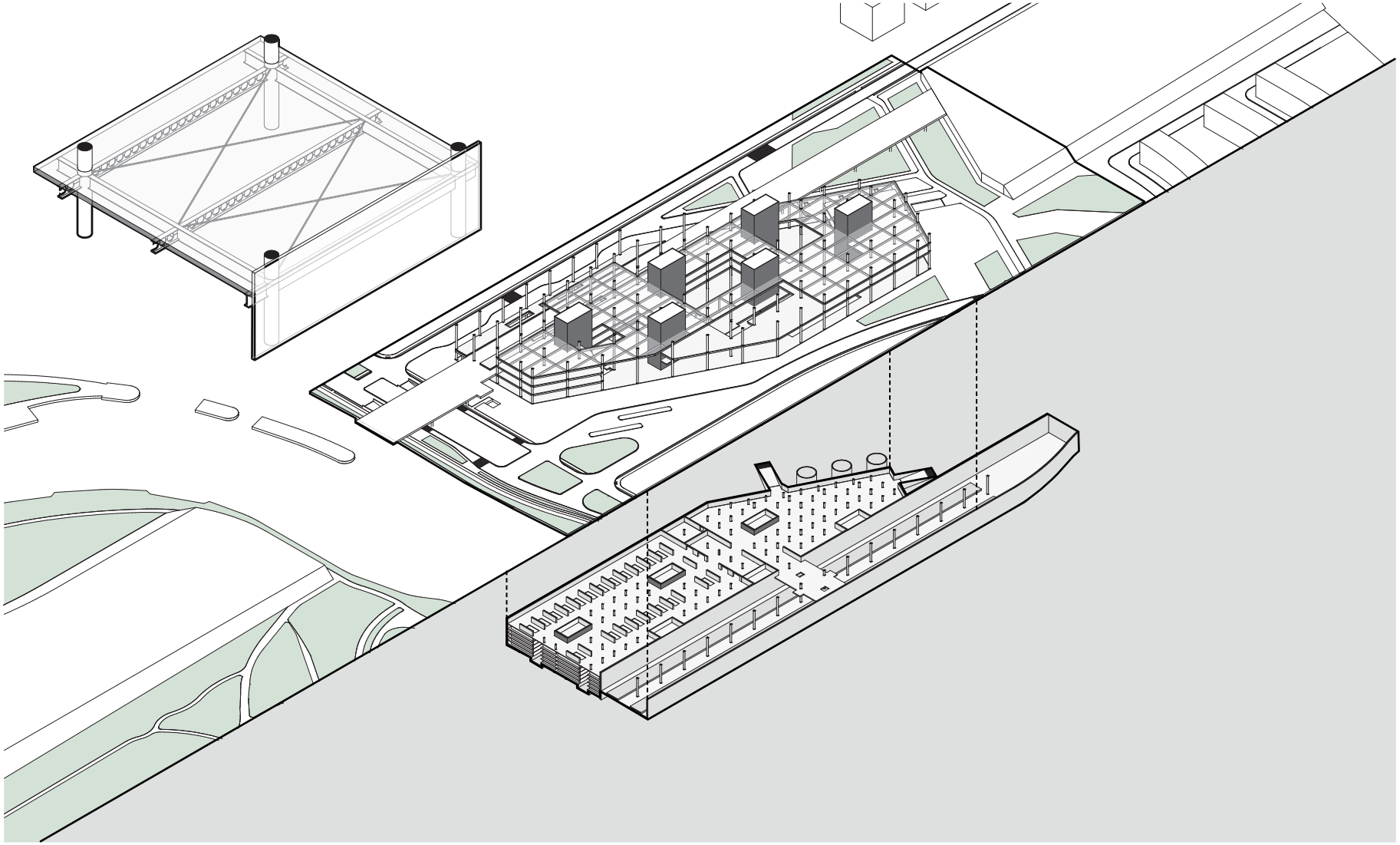

**The forum is cut open to have a view of the service cores.**

# BUILDING CONCEPT



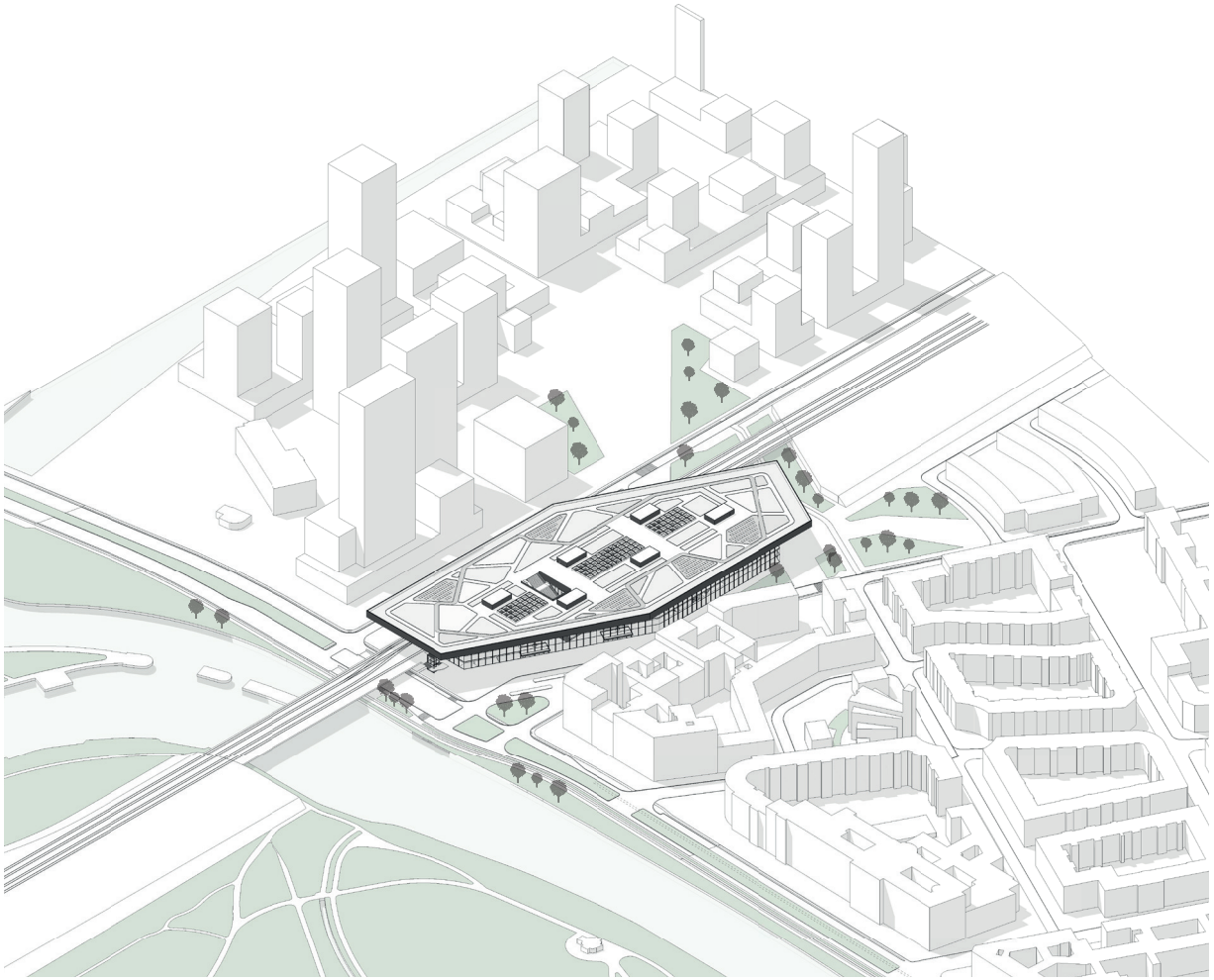

**All is covered underneath one roof.**

# STRUCTURAL CONCEPT



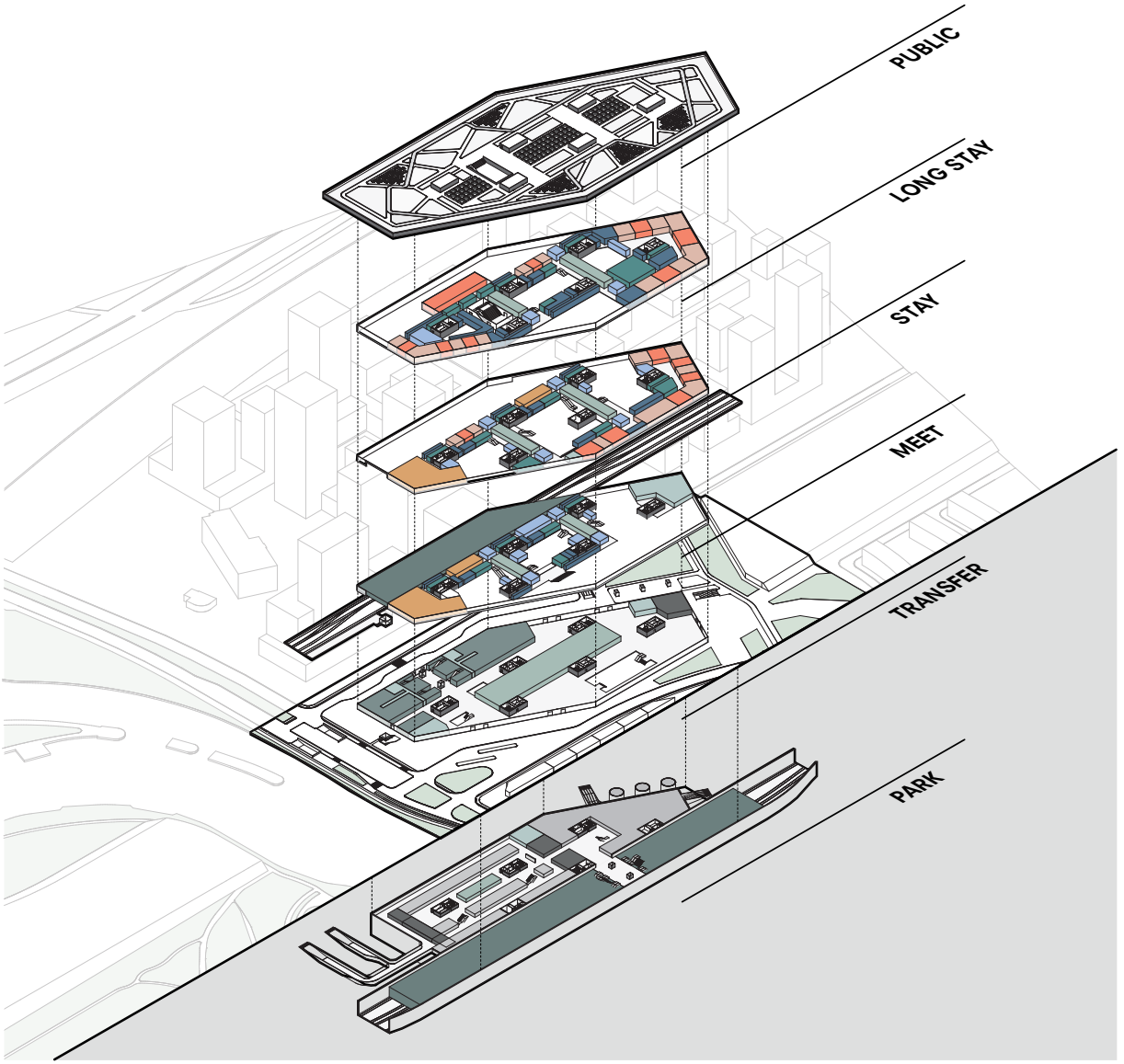
**The structural concept is based on a 14.4 by 14.4 grid. Allowing maximum flexibility and making the service cores standalone.**

# BUILDING OVERVIEW



**Which resulted in this building.**

# BUILDING ORGANISATION




**Station**

- Offices and services
- Parking
- Bike parking
- Service mobility
- Station elements
- Commercial

**Forum:**

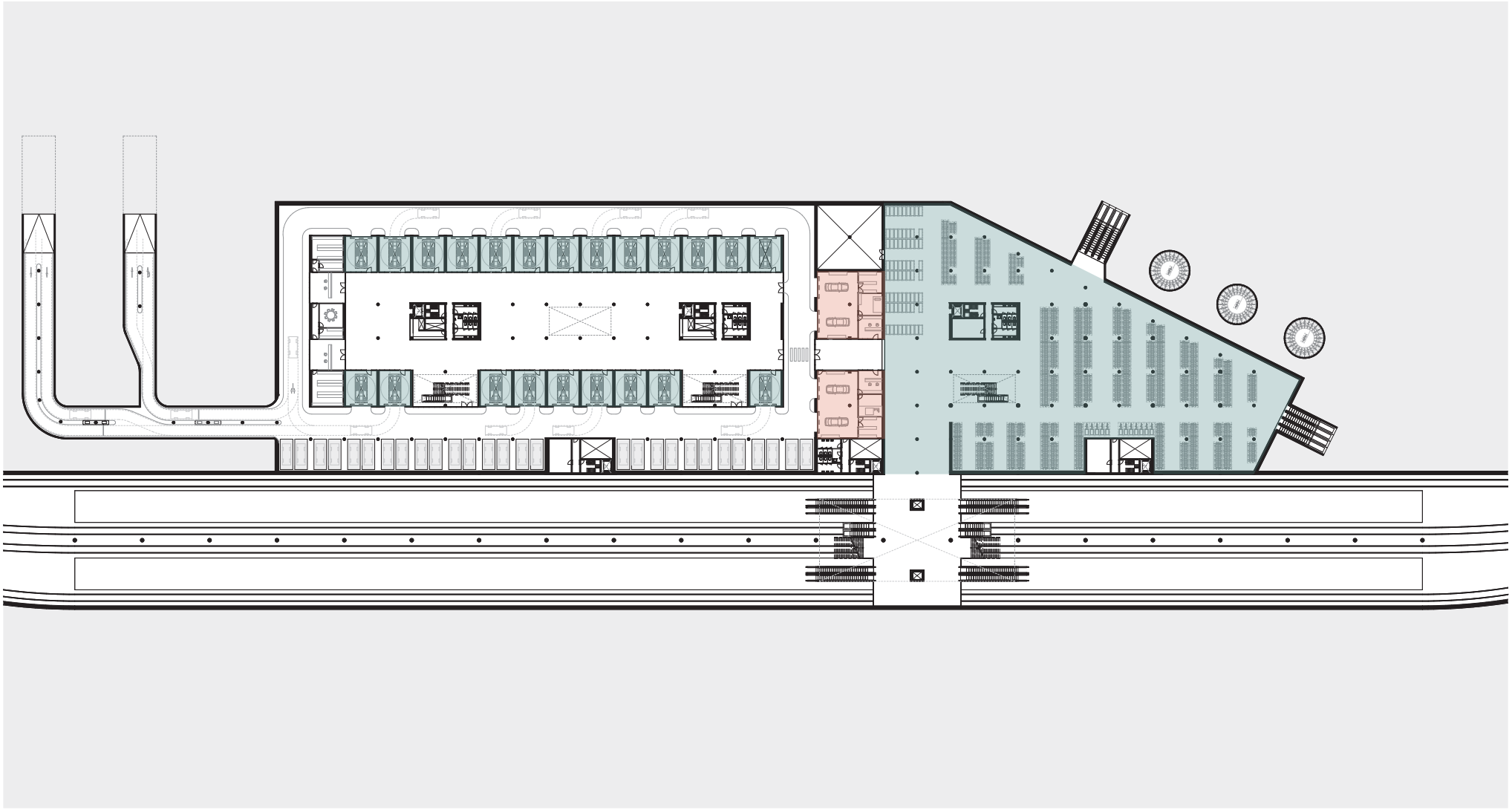
- Service fixed
- Workshops
- Multi-purpose rooms
- Touch down spaces
- Lounge
- Curtain zones
- Exhibition

**Program placement based on time spent in the building.**

# DESIGN

Building organisation

# BASEMENT



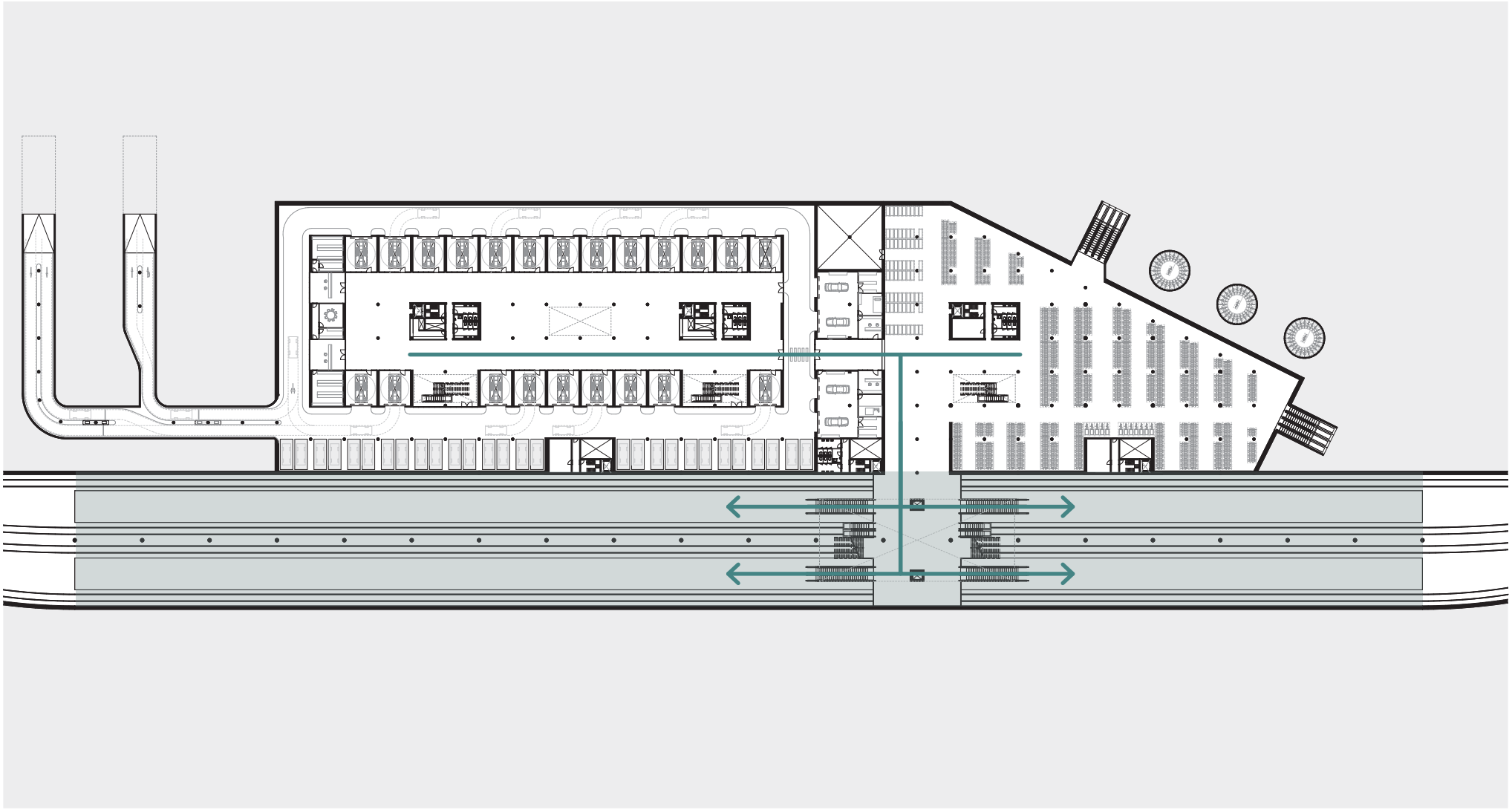
**Bike and car oriented services.**

Building organisation

# CAR DROP-OFF

Building organisation

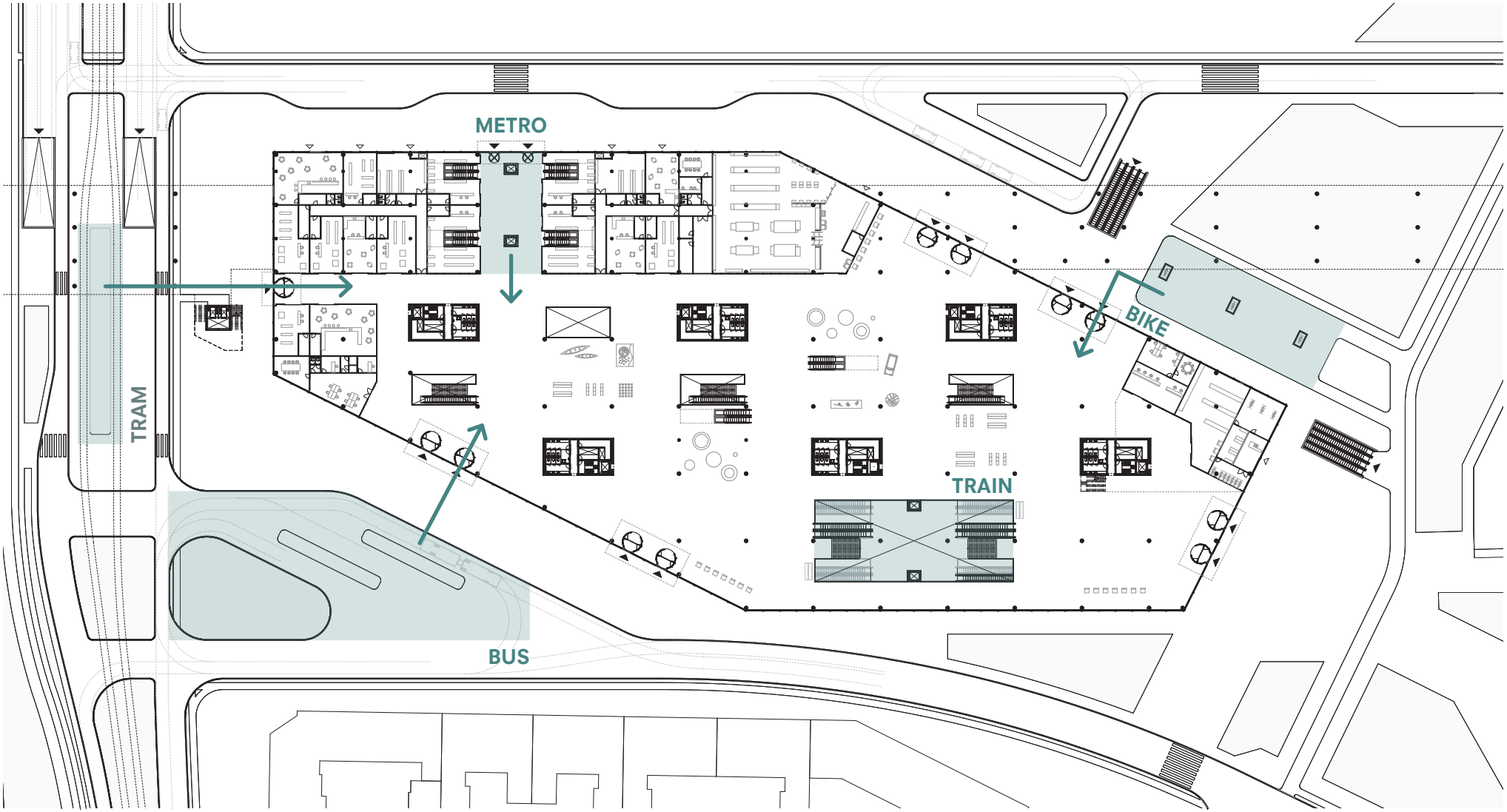
# BASEMENT



**Directly connected to train station.**

Building organisation

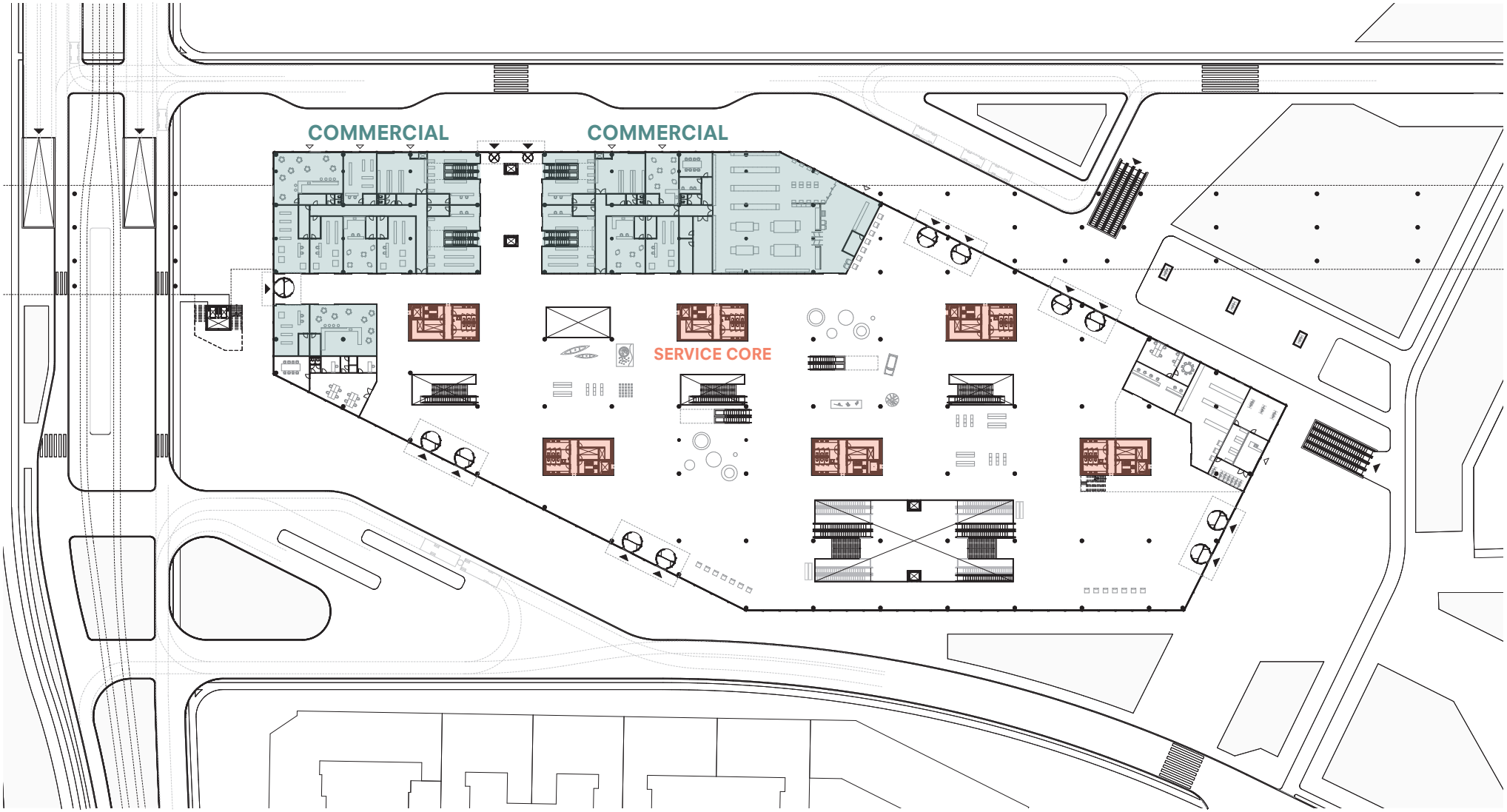
# GROUND FLOOR




**Oriented on switching modes of transportation.**

Building organisation

# GROUND FLOOR



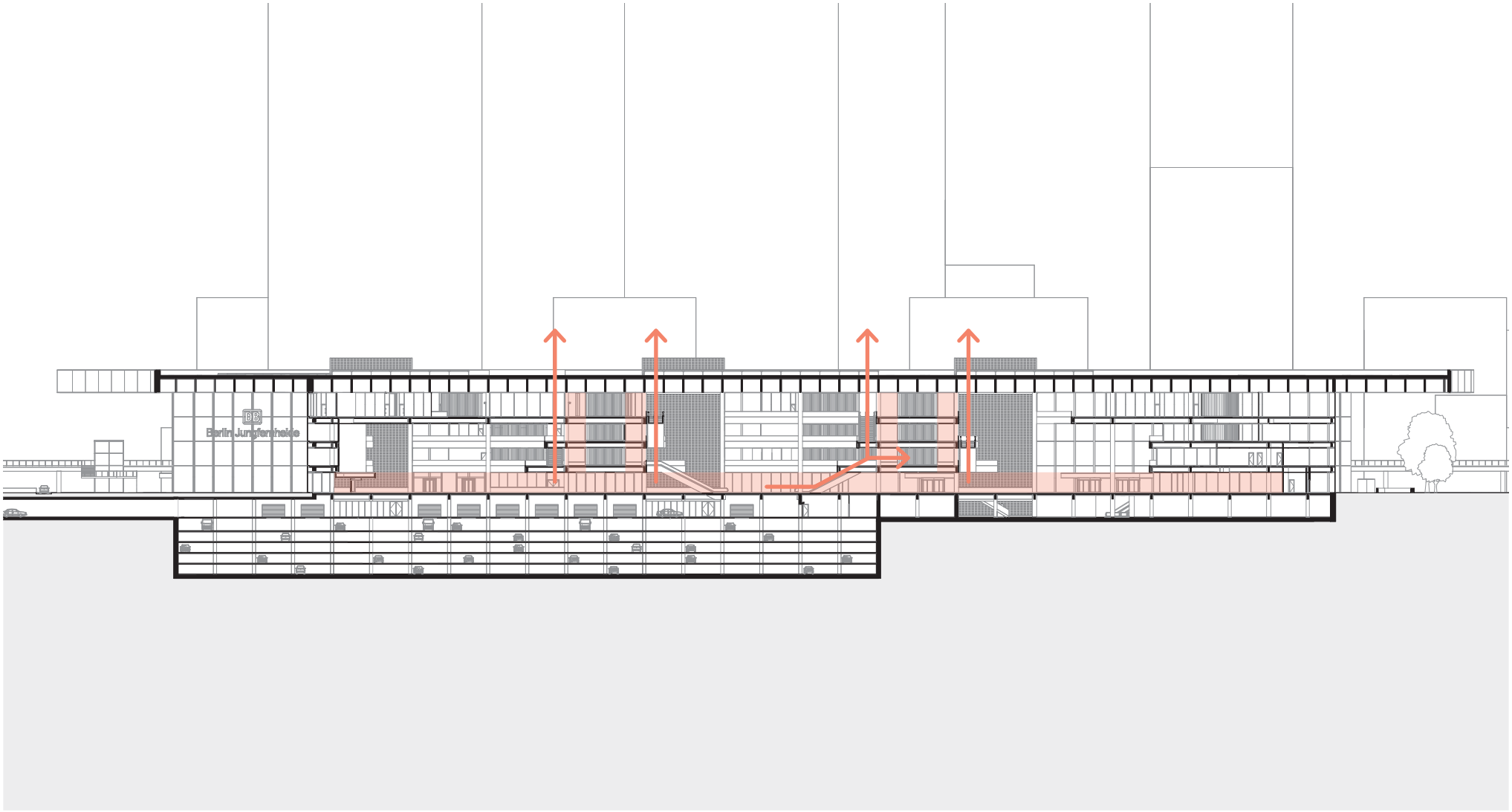

**Big station hall with service related amenities.**

Building organisation

# SERVICE CORE

Building organisation

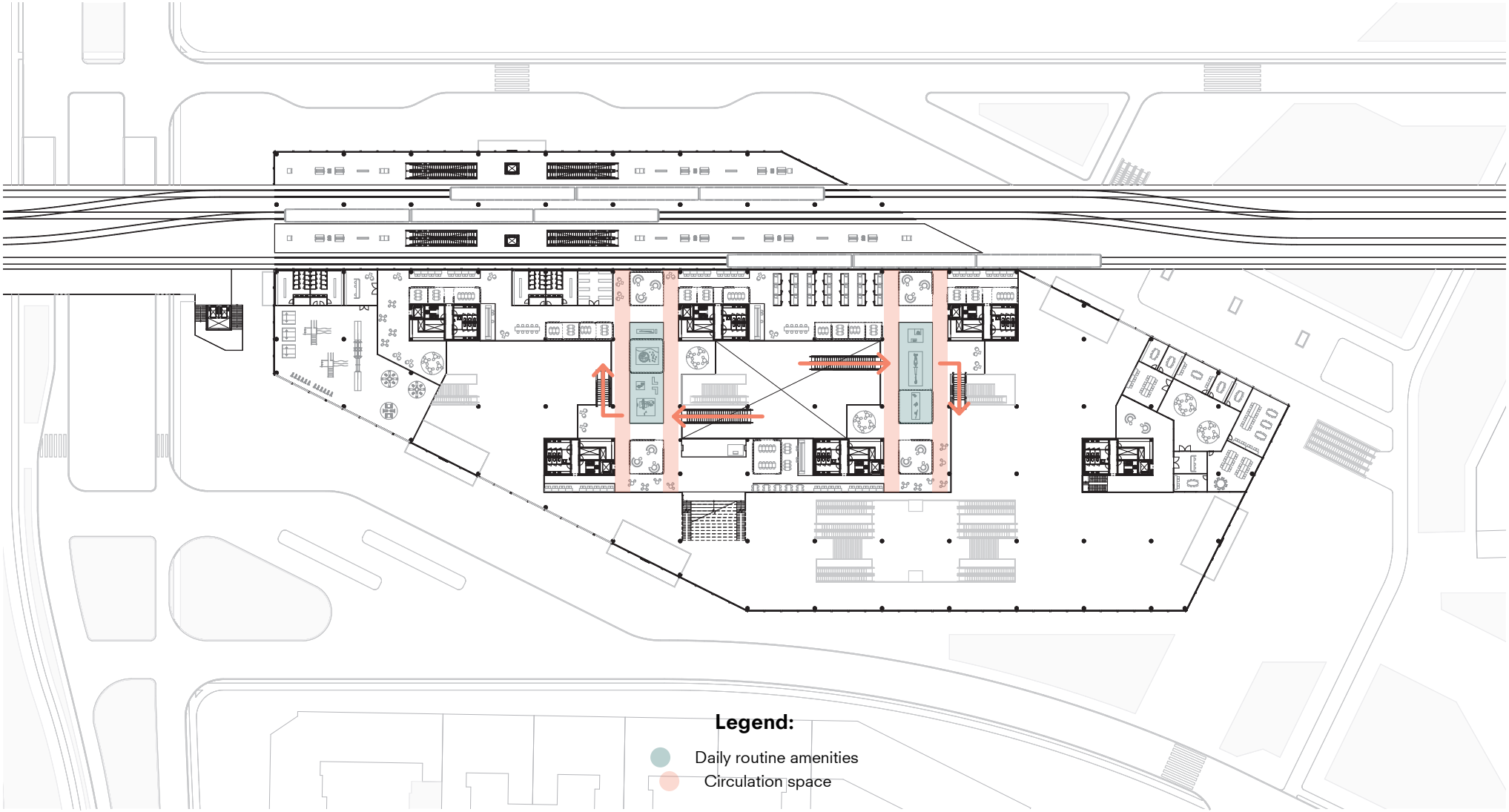
# LONGITUDINAL SECTION




**Main circulation space**

Building organisation

# FIRST FLOOR



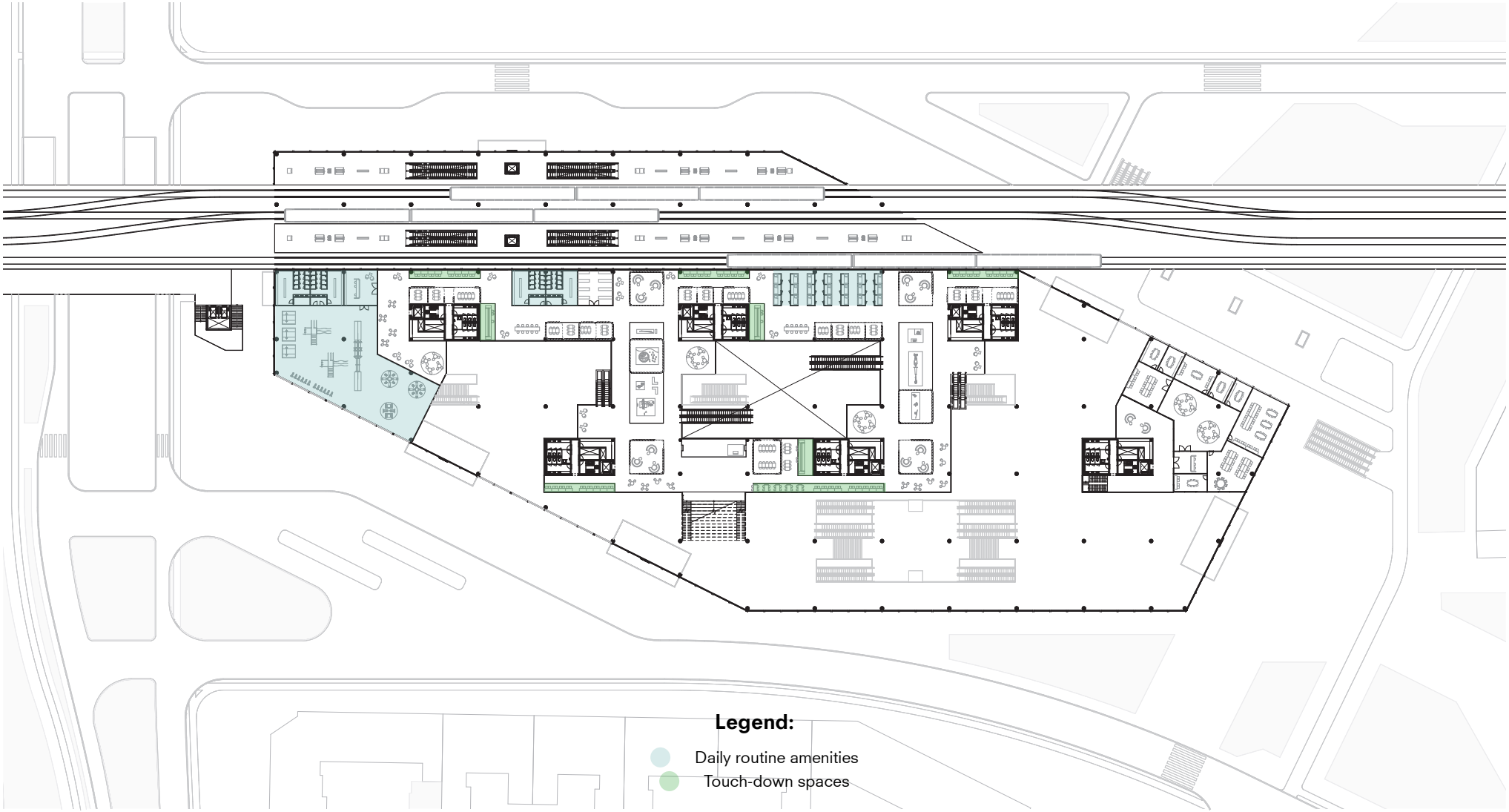

**Exhibition zones adjacent to main circulation**

Building organisation

# EXHIBITION ZONE

Building organisation

# FIRST FLOOR

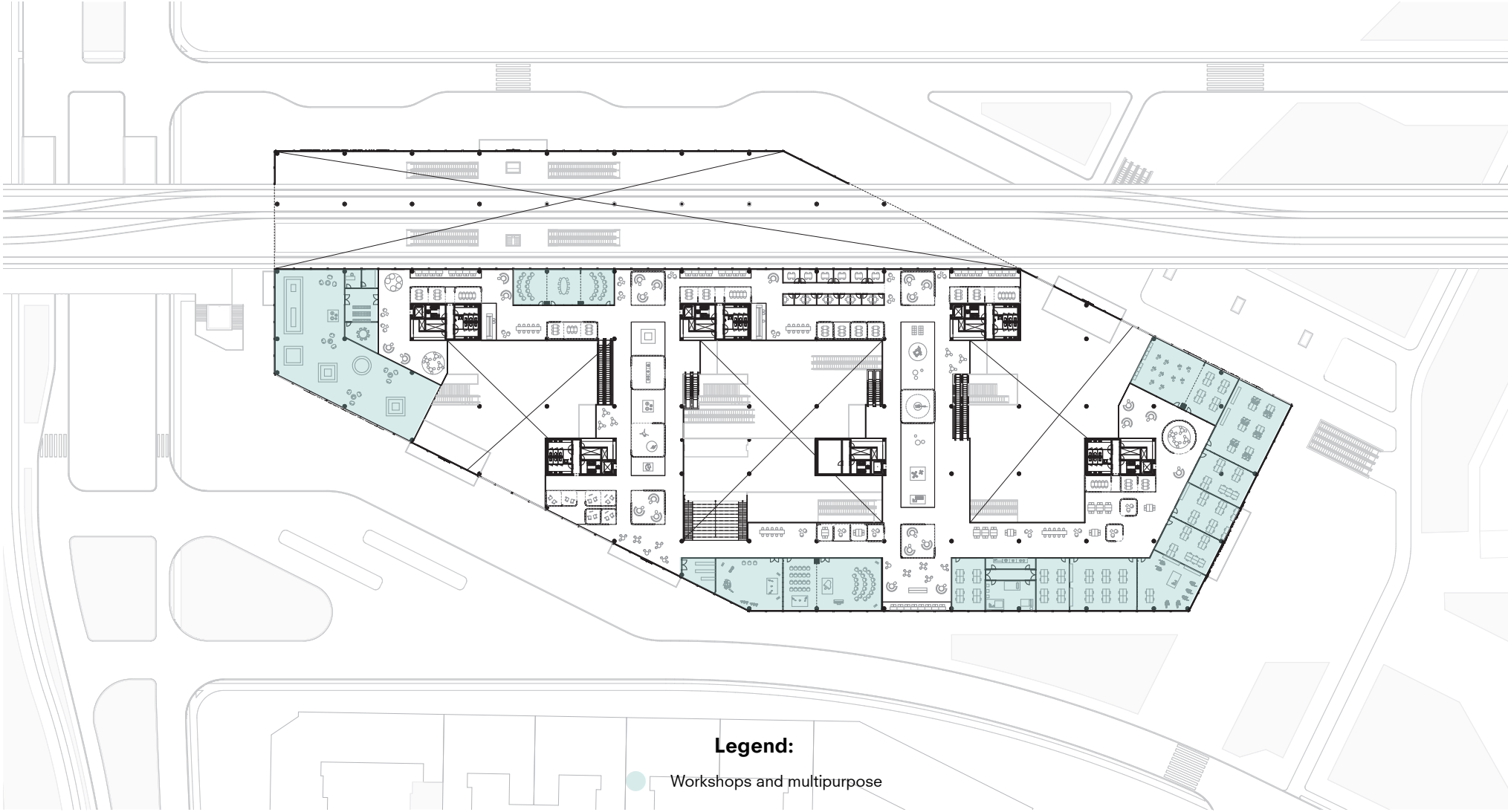



**Short stay lounge and working spaces. Contains also daily routine amenities.**

# TOUCH DOWN SPACE

Building organisation

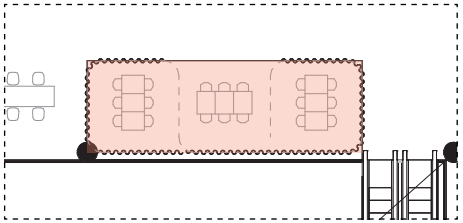
# SECOND FLOOR



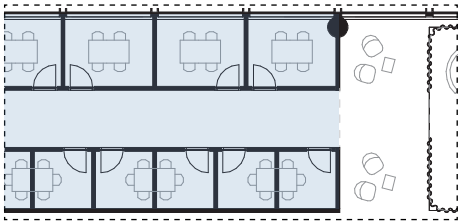

**Fixed spaces placed adjacent to the buildings facade.**

Building organisation

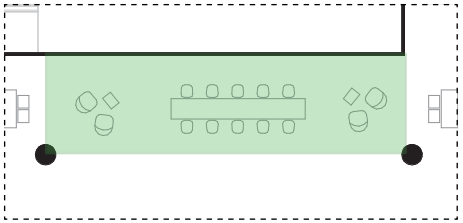
# SECOND FLOOR



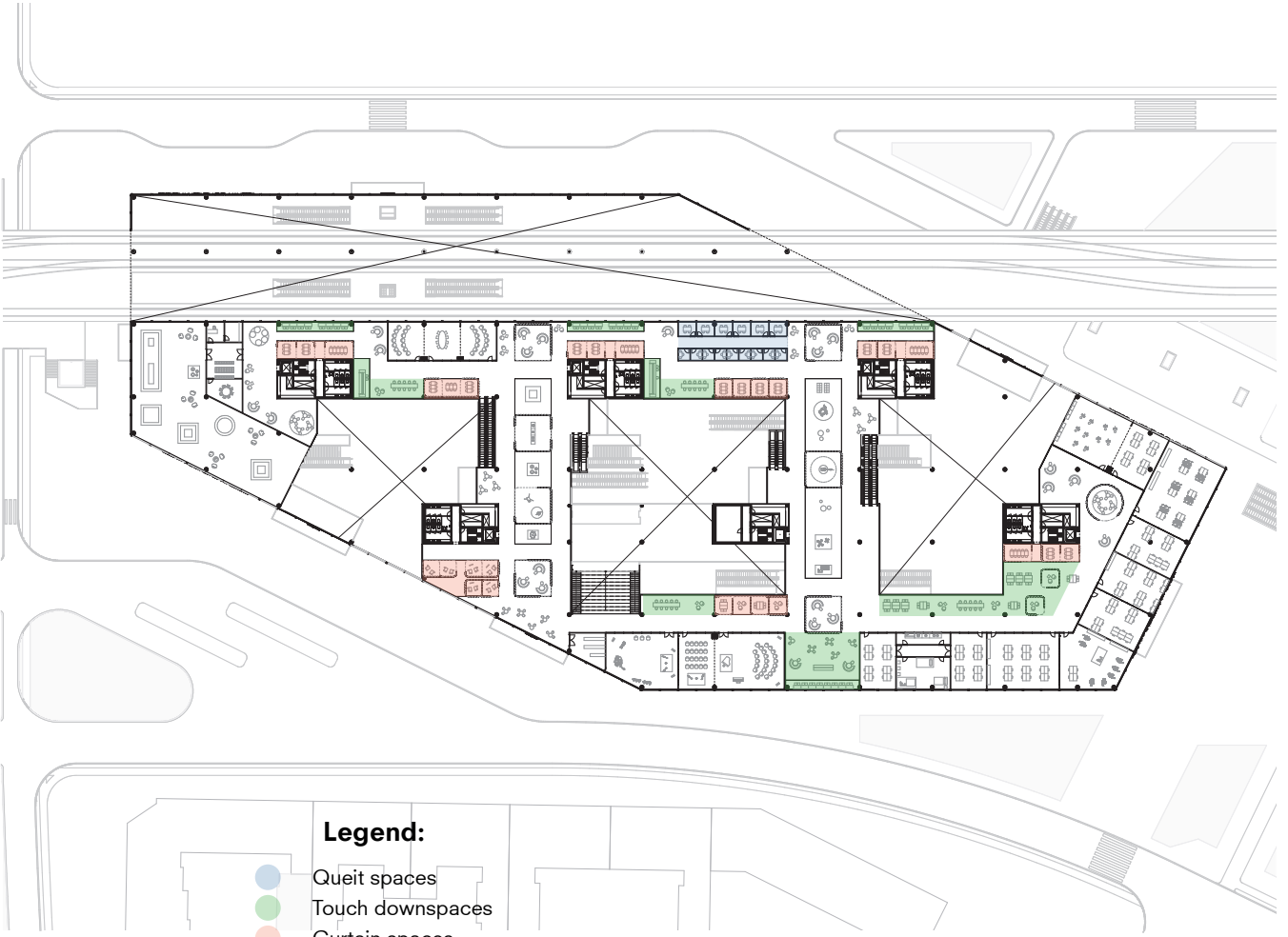
**CURTAIN SPACE**



**QUIET SPACES**



**TOUCH DOWNSPACES**



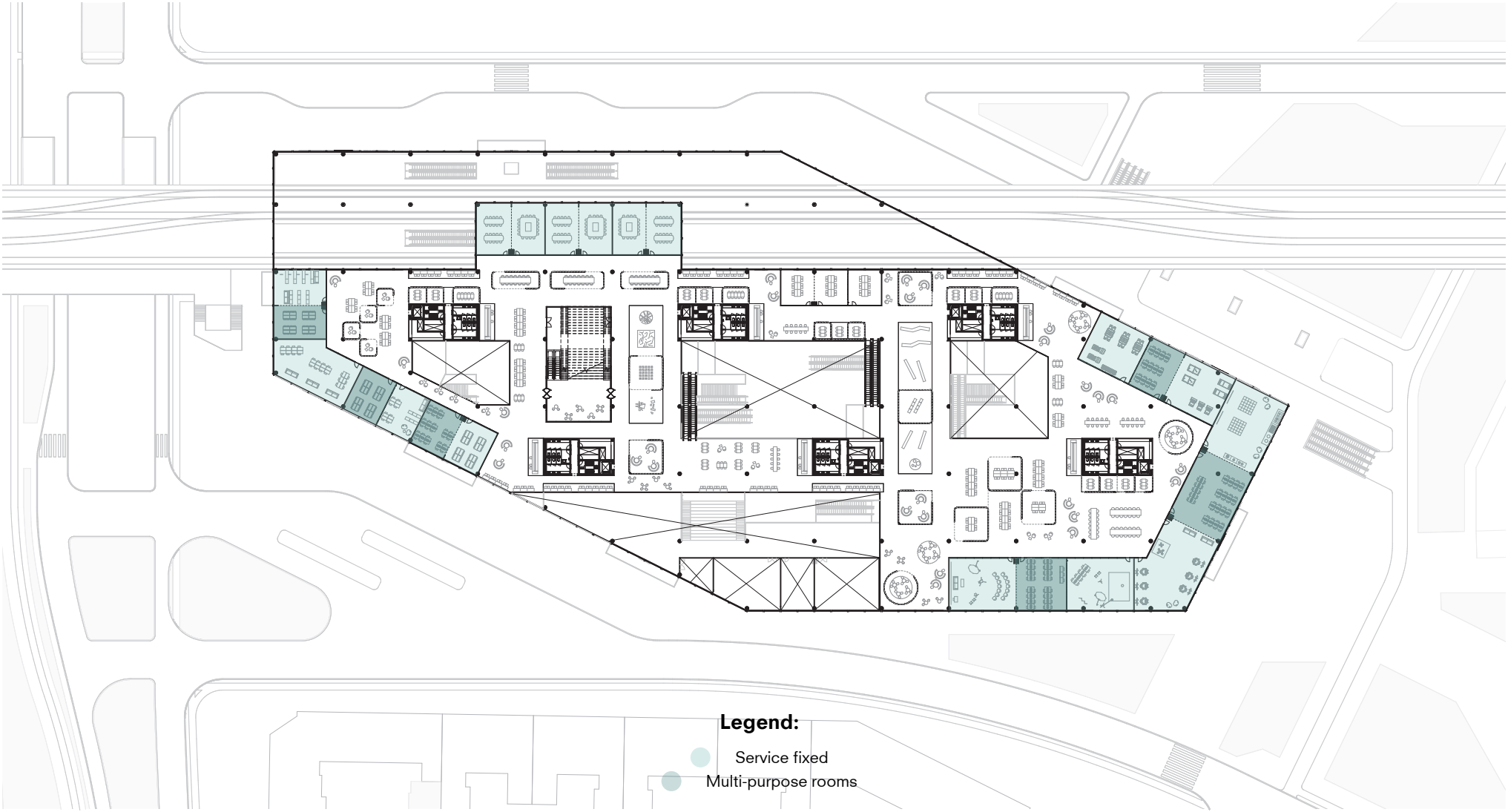

**Workspaces fill-up the building.**

Building organisation

# CURTAIN ZONE

Building organisation

# THIRD FLOOR

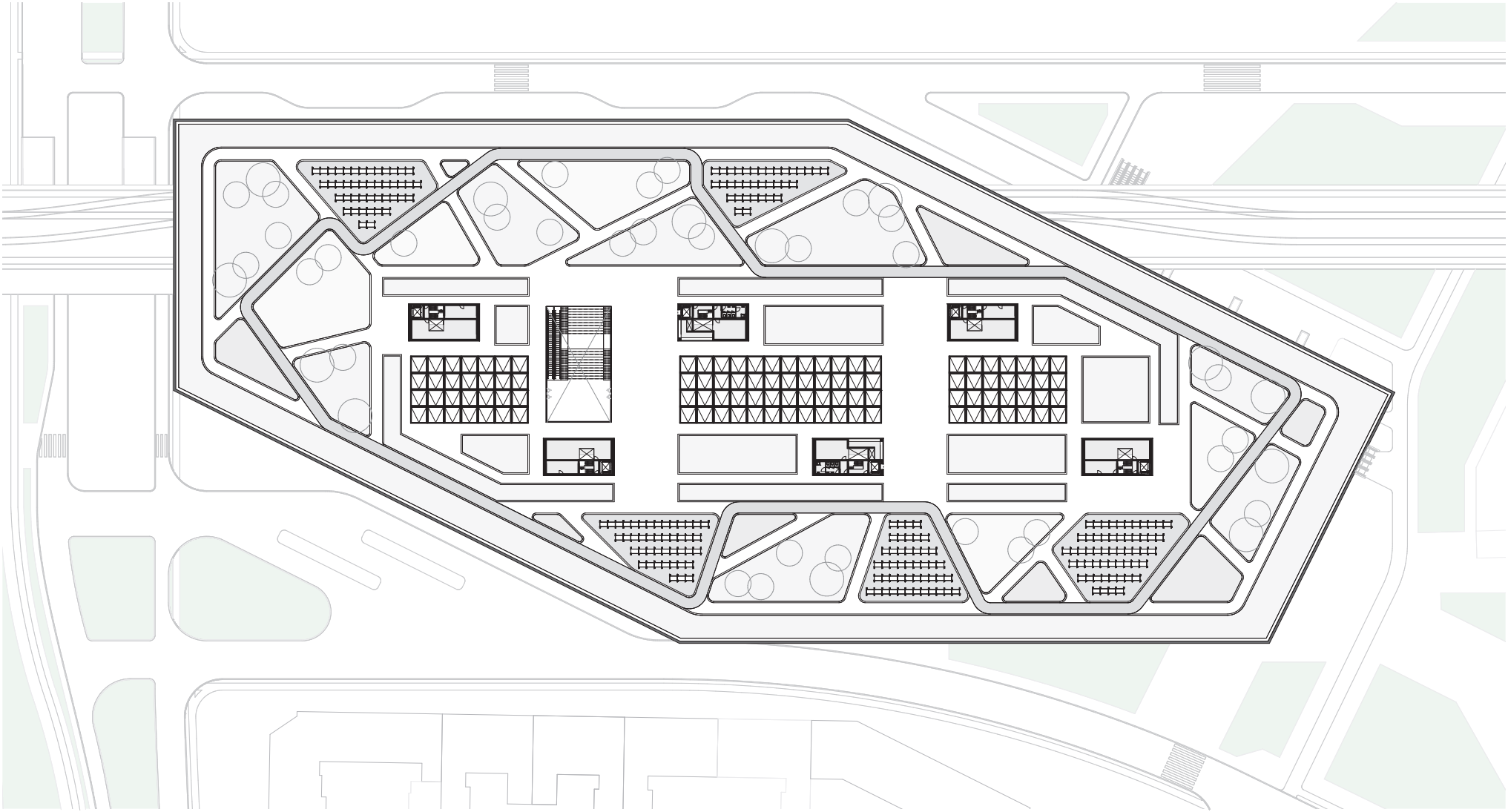



**Workshop and long stay oriented formal character of actives.**

Building organisation

# WORKSHOP SPACE

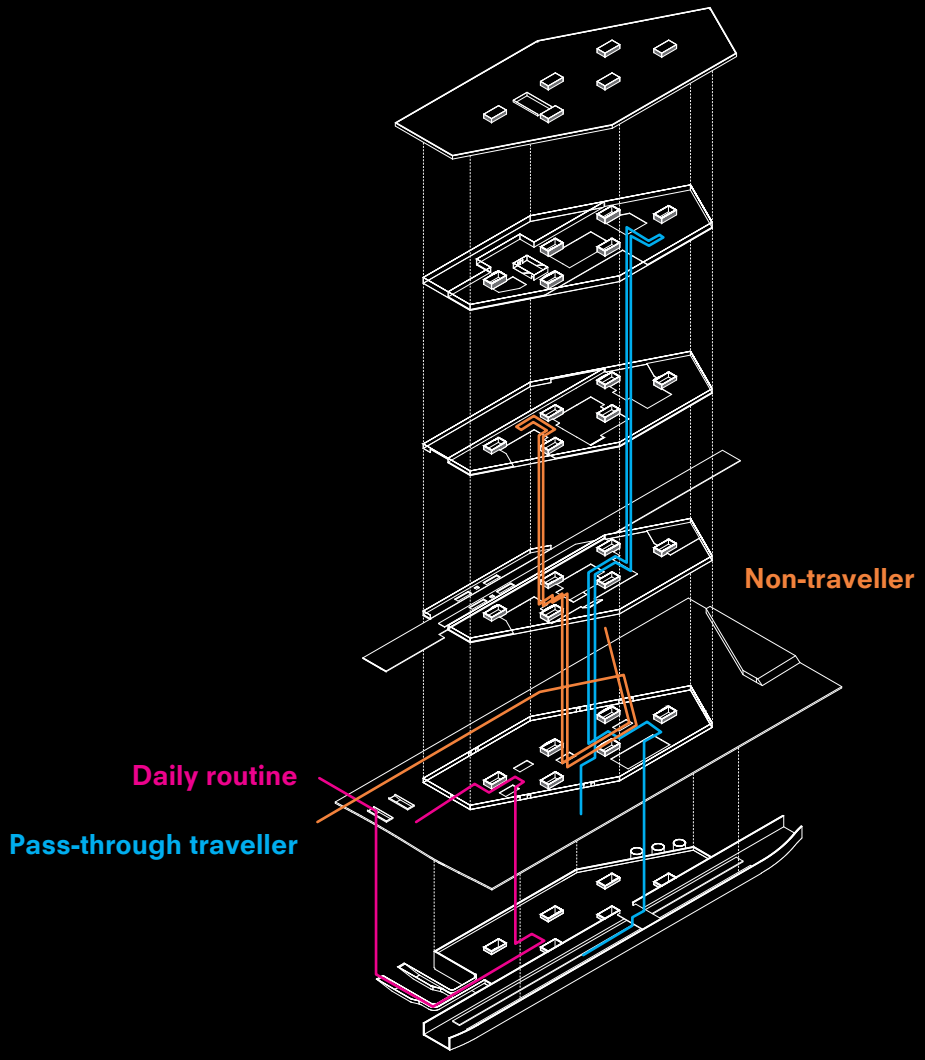
# ROOF



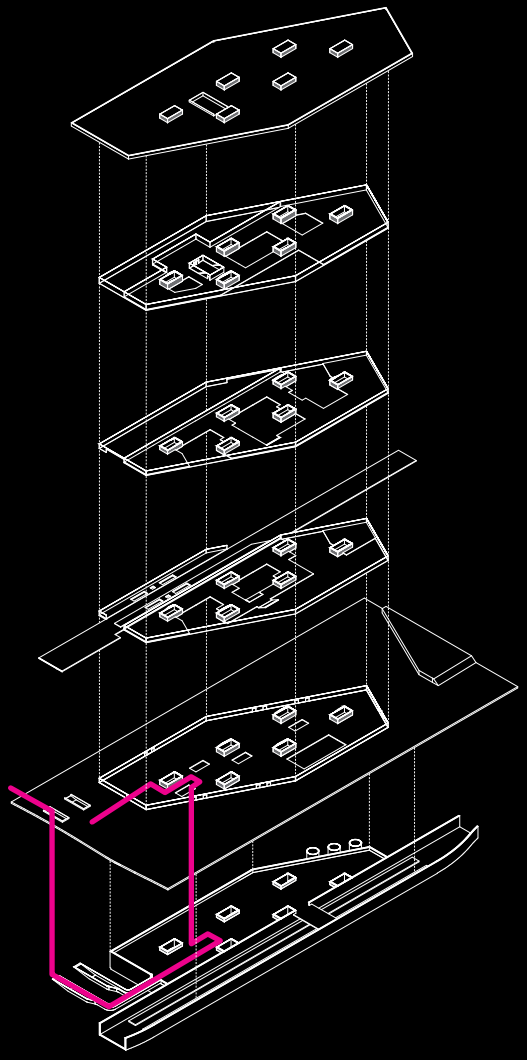
**Public accessible roof for the neighbourhood or to relax during travel.**

# ROOF TERRACE

# TRAVEL PERSPECTIVES

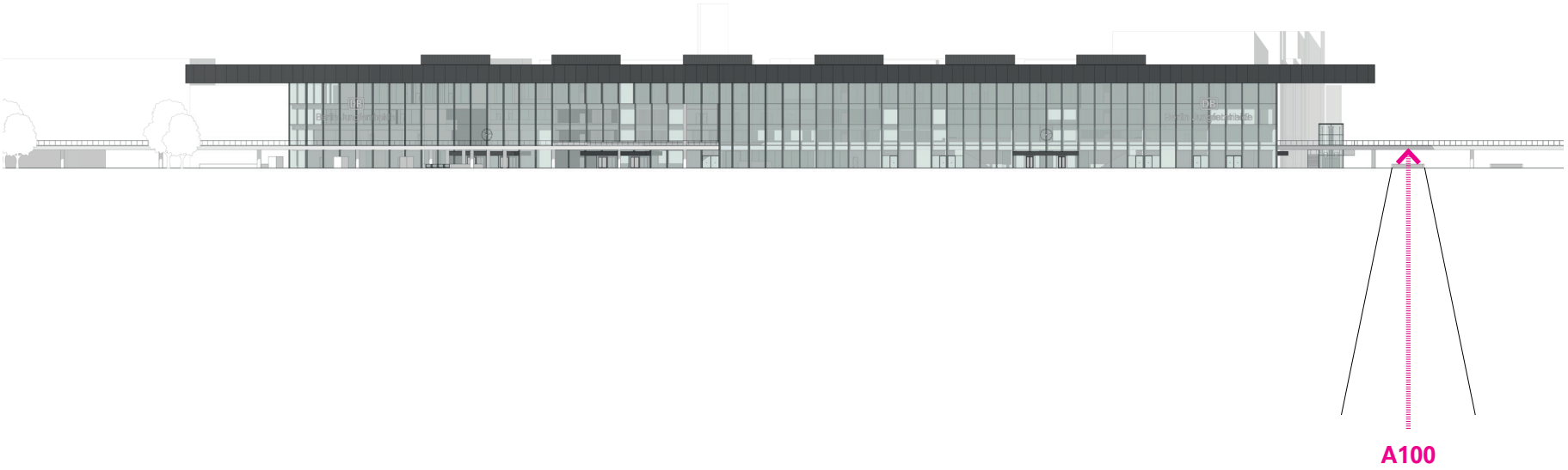


# TRAVEL PERSPECTIVES



Travel perspectives

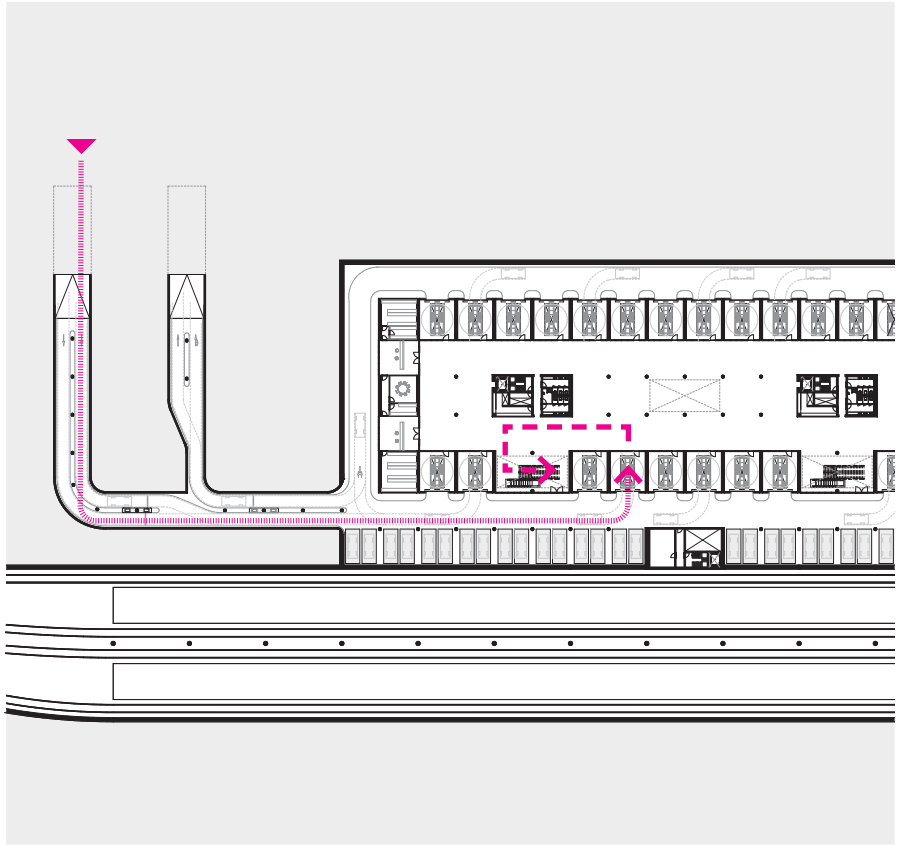
# DAILY ROUTINE TRAVELLER

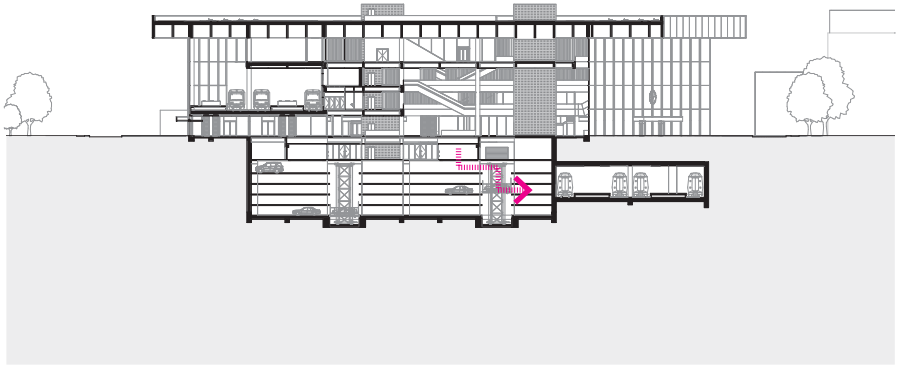



**The daily routine traveller arrives at the station after exiting the A100 highway...**

Travel perspectives

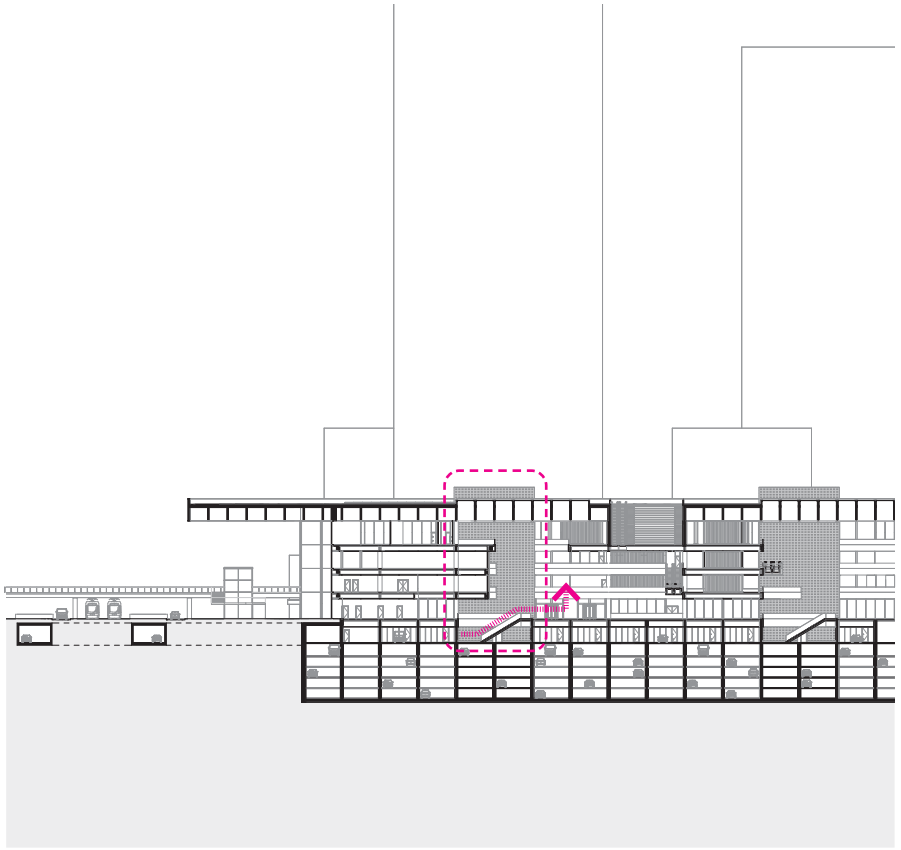
# DAILY ROUTINE TRAVELLER

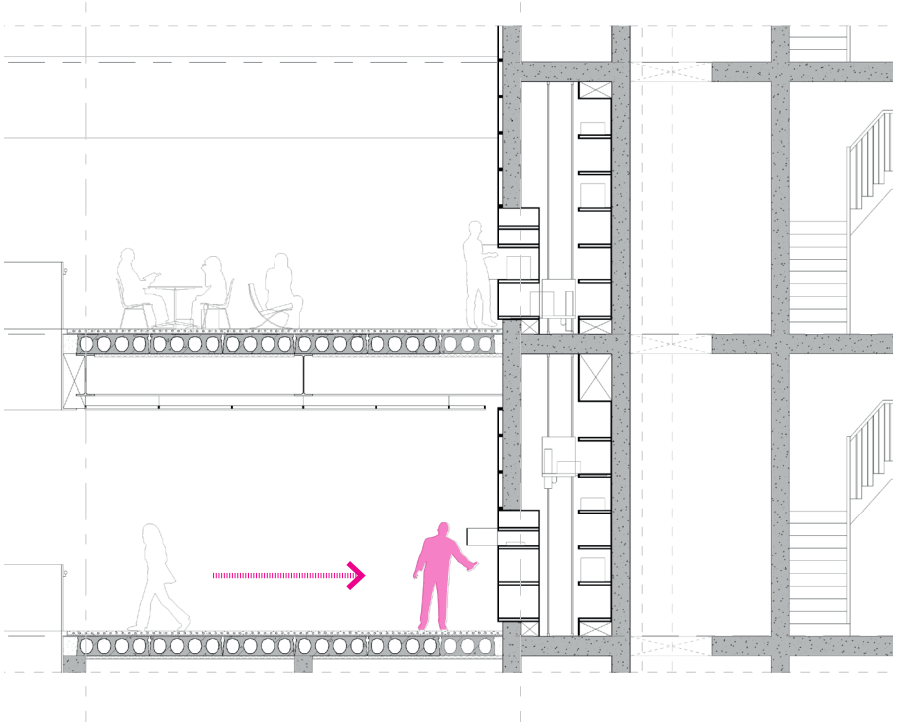




**The automated parking facility takes over parking operations and allows cars to be used as a mode of transportation for other users...**

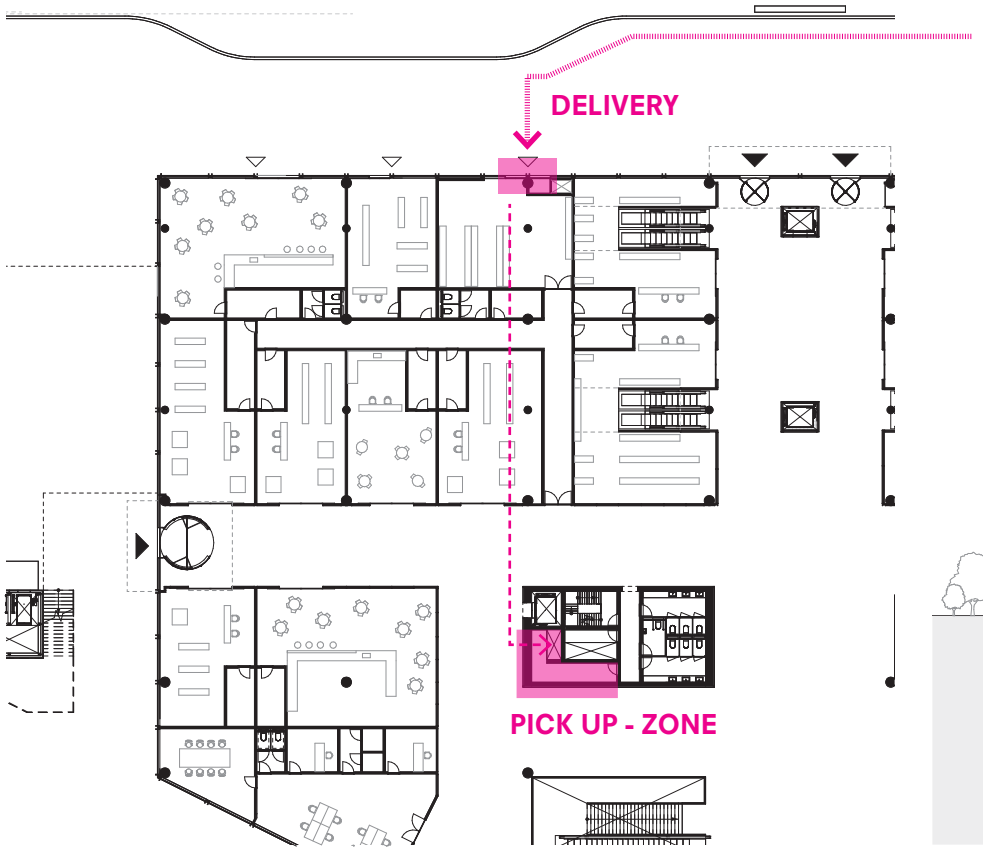
# DAILY ROUTINE TRAVELLER

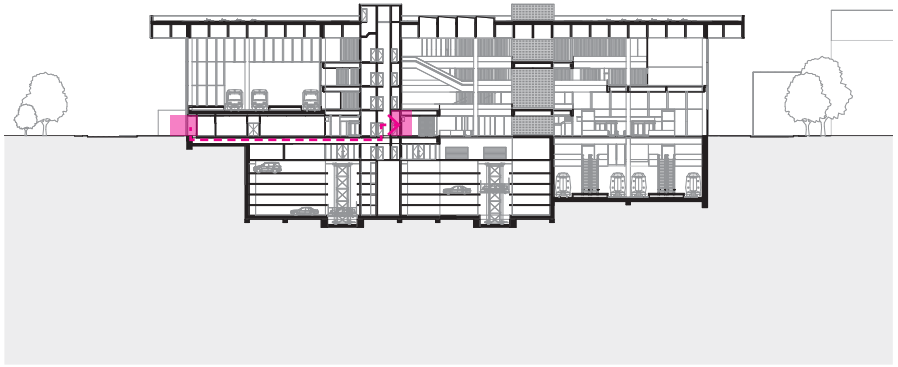




**After leaving the parking level the traveller walks towards one of the building service cores. Here he picks up his breakfast which was delivered based on his time of arrival...**

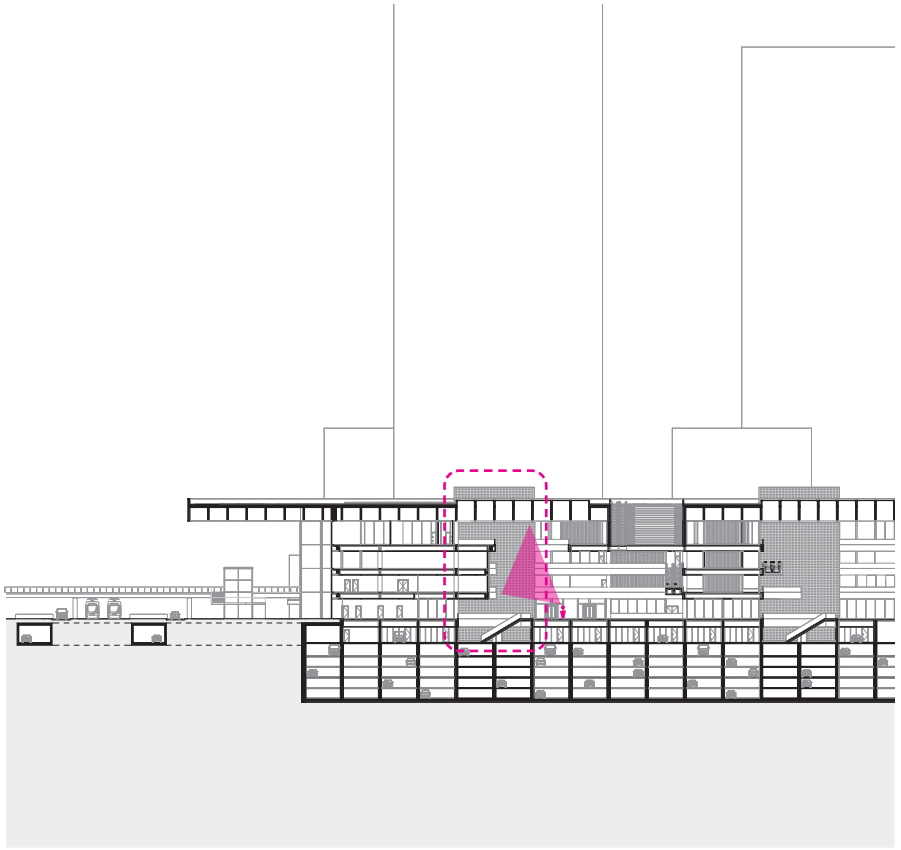
# DAILY ROUTINE TRAVELLER

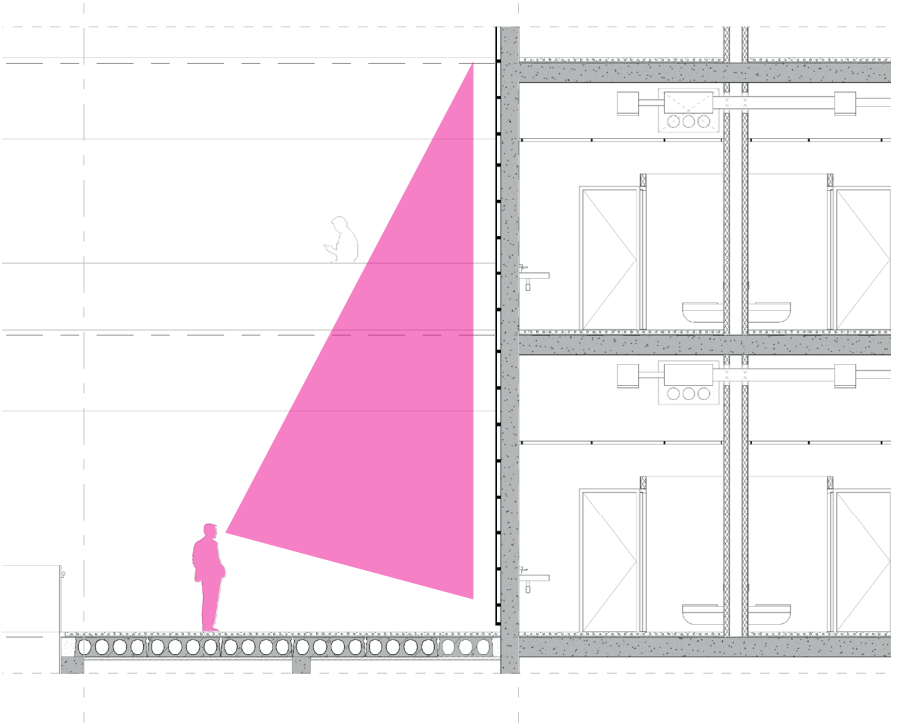


**The breakfast was prepared in a café near the station, part of the building's automated delivery programme...**

# DAILY ROUTINE TRAVELLER



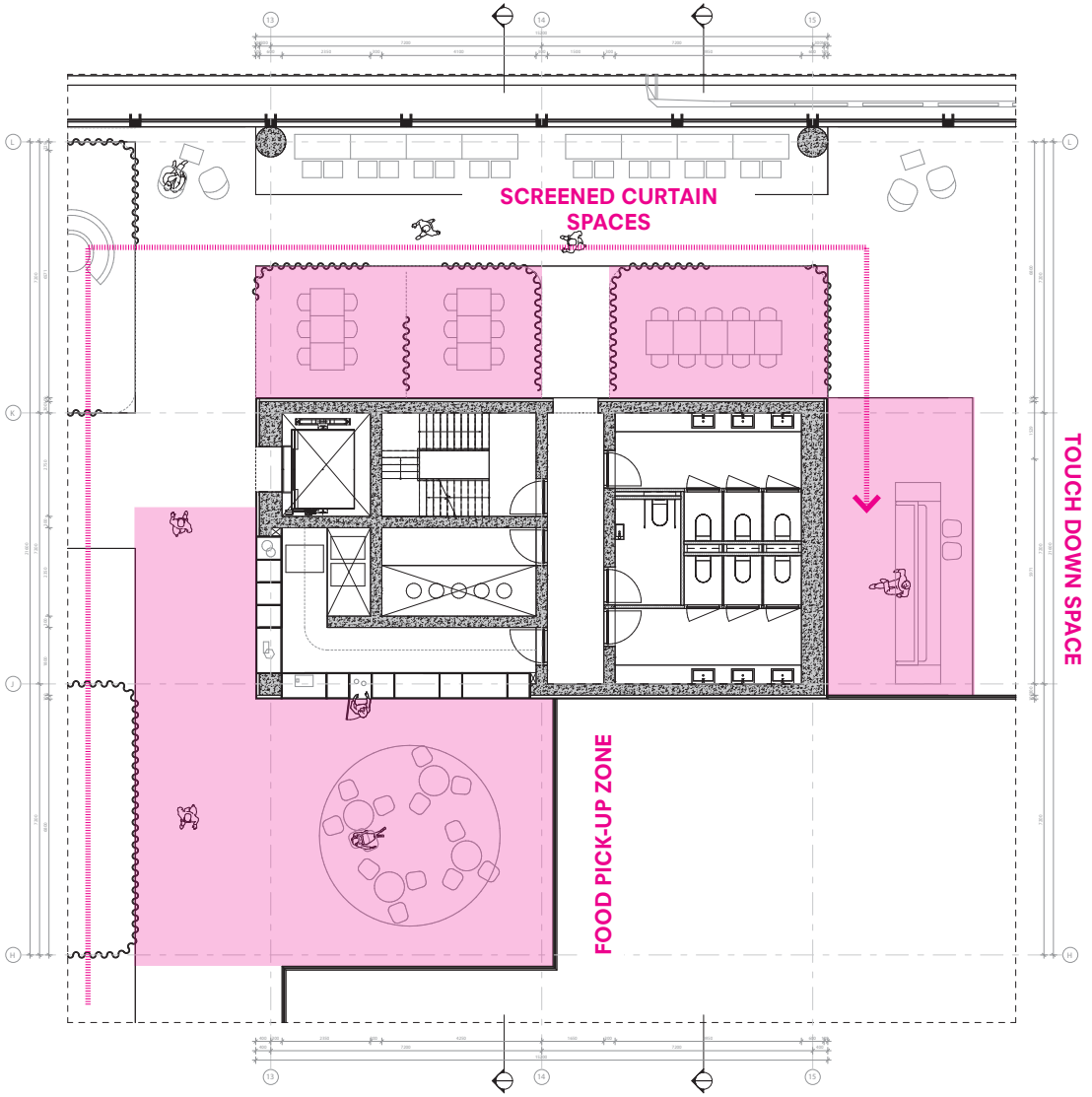


**While at the core, the traveller uses the main screen to catch up with the daily news and weather report...**

# SERVICE CORE

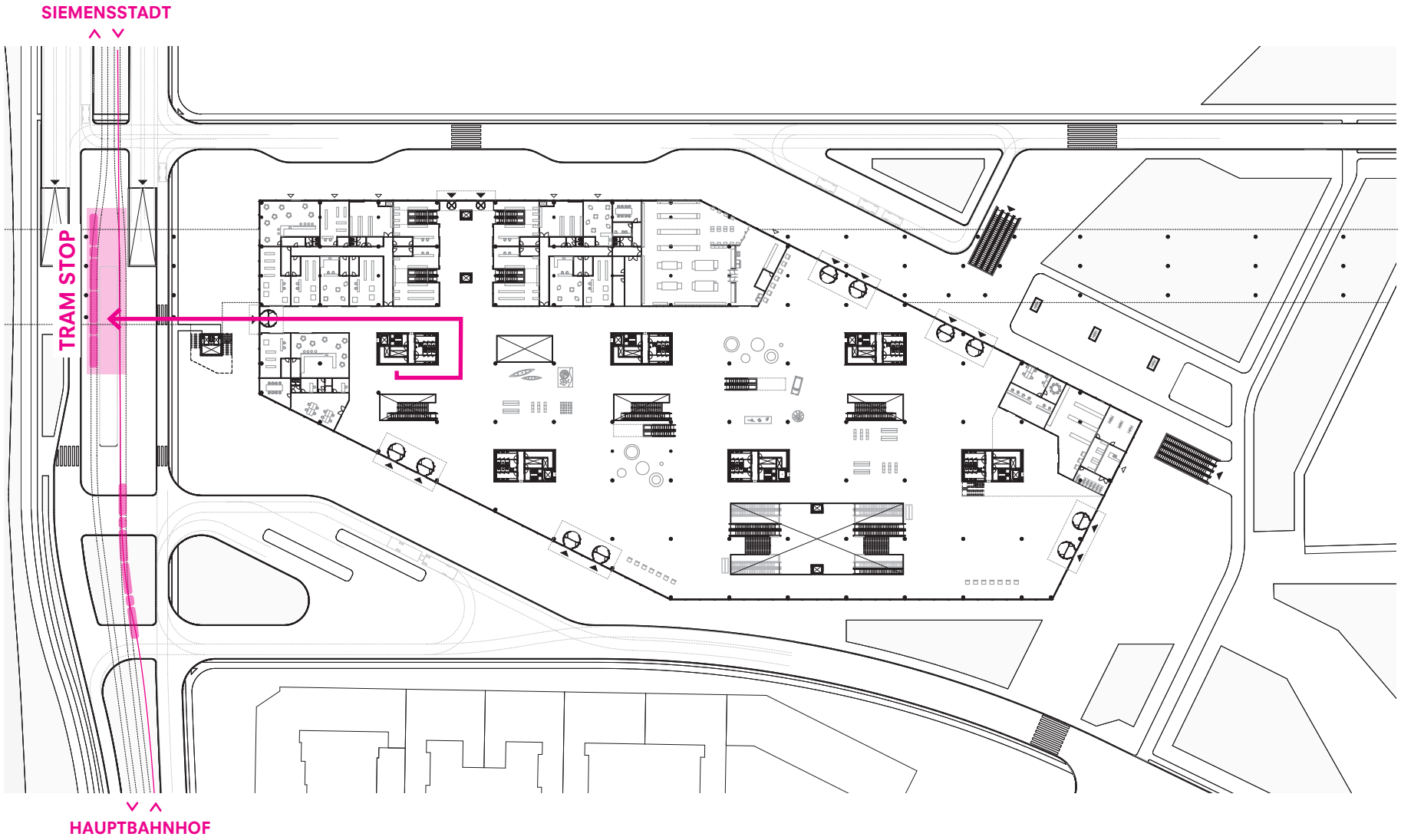
Travel perspectives

# DAILY ROUTINE TRAVELLER



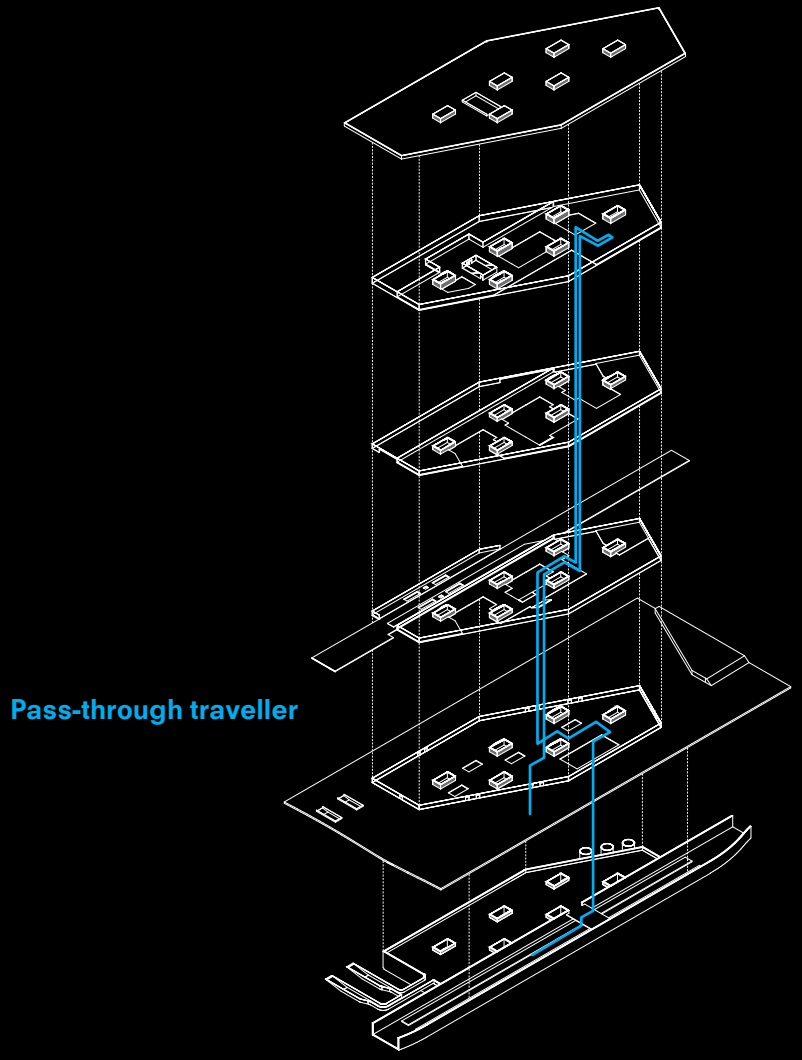

**Apart from food services the service core also provides touch-down working space and screened curtain spaces...**

# DAILY ROUTINE TRAVELLER



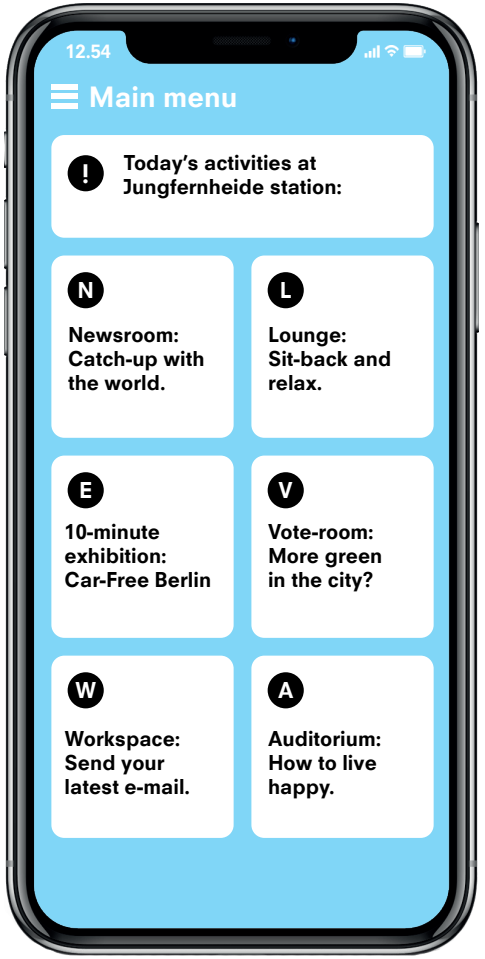

**After breakfast, the traveller leaves the building to catch the tram, which rides precisely on time.**

# TRAVEL PERSPECTIVES



Travel perspectives

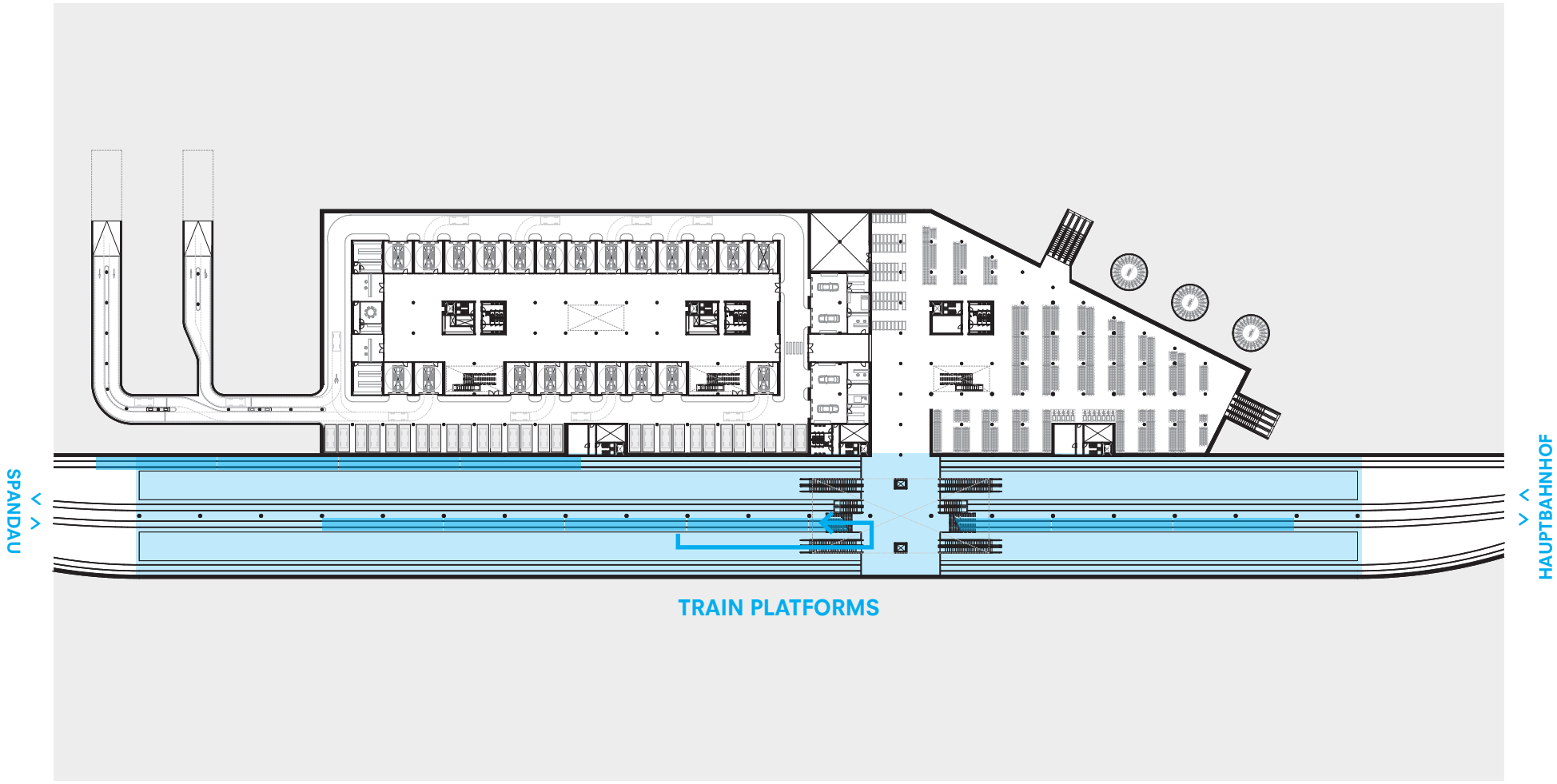
# PASS-THROUGH TRAVELLER




**During his journey, the traveller was notified about the station's activities today. The traveller registered for a workshop following his arrival time...**

Travel perspectives

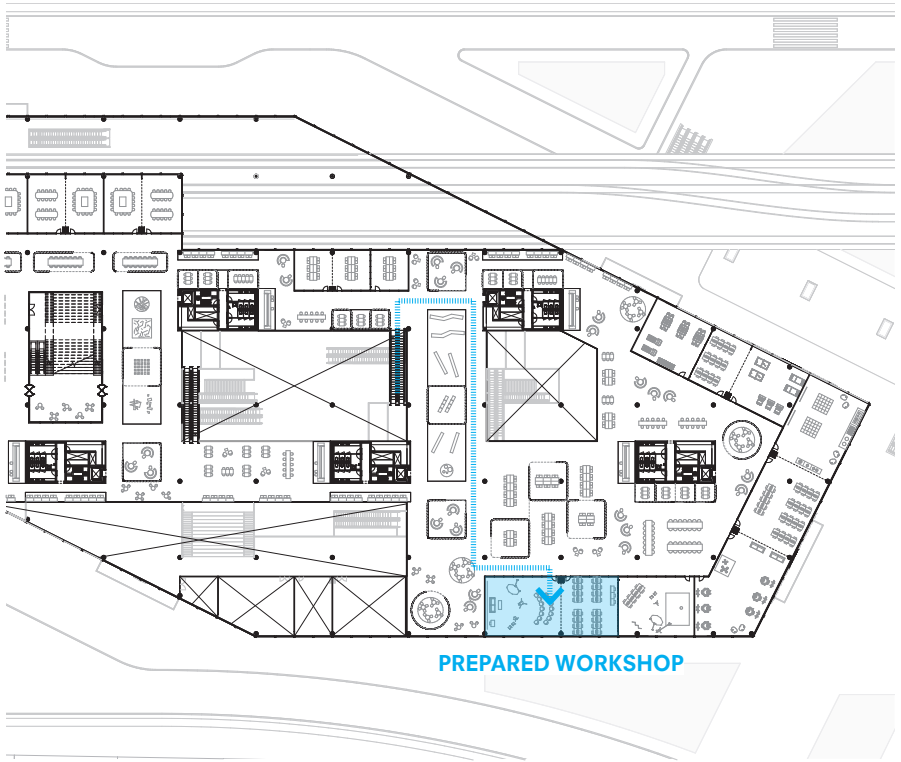
# PASS-THROUGH TRAVELLER

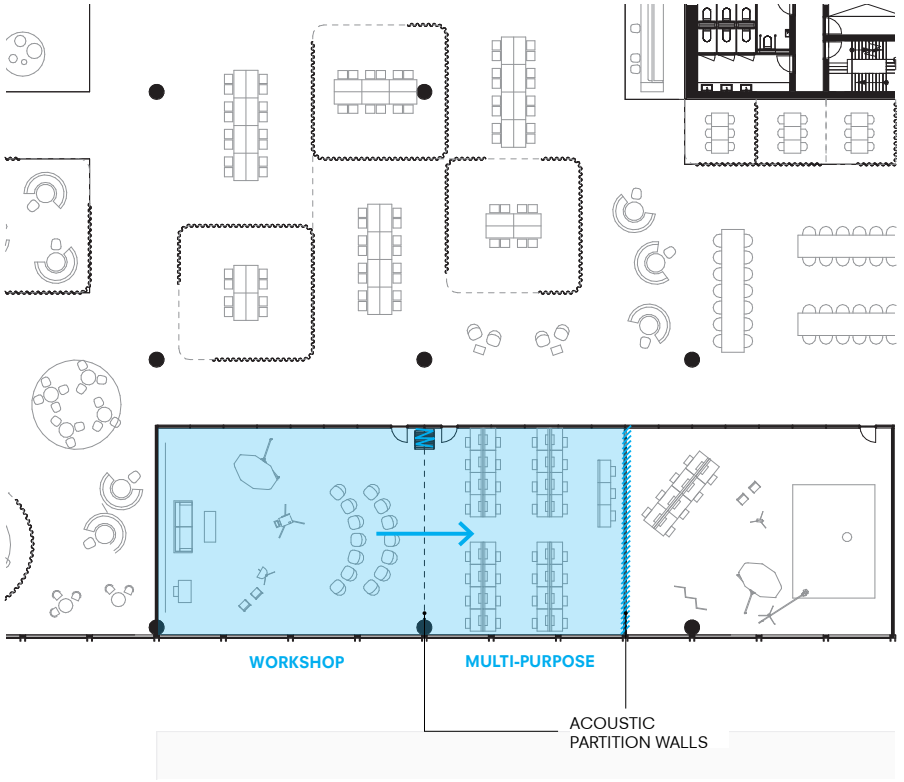



**The pass-through traveller arrives by train from outside Berlin...**

# PASS-THROUGH TRAVELLER

# PASS-THROUGH TRAVELLER



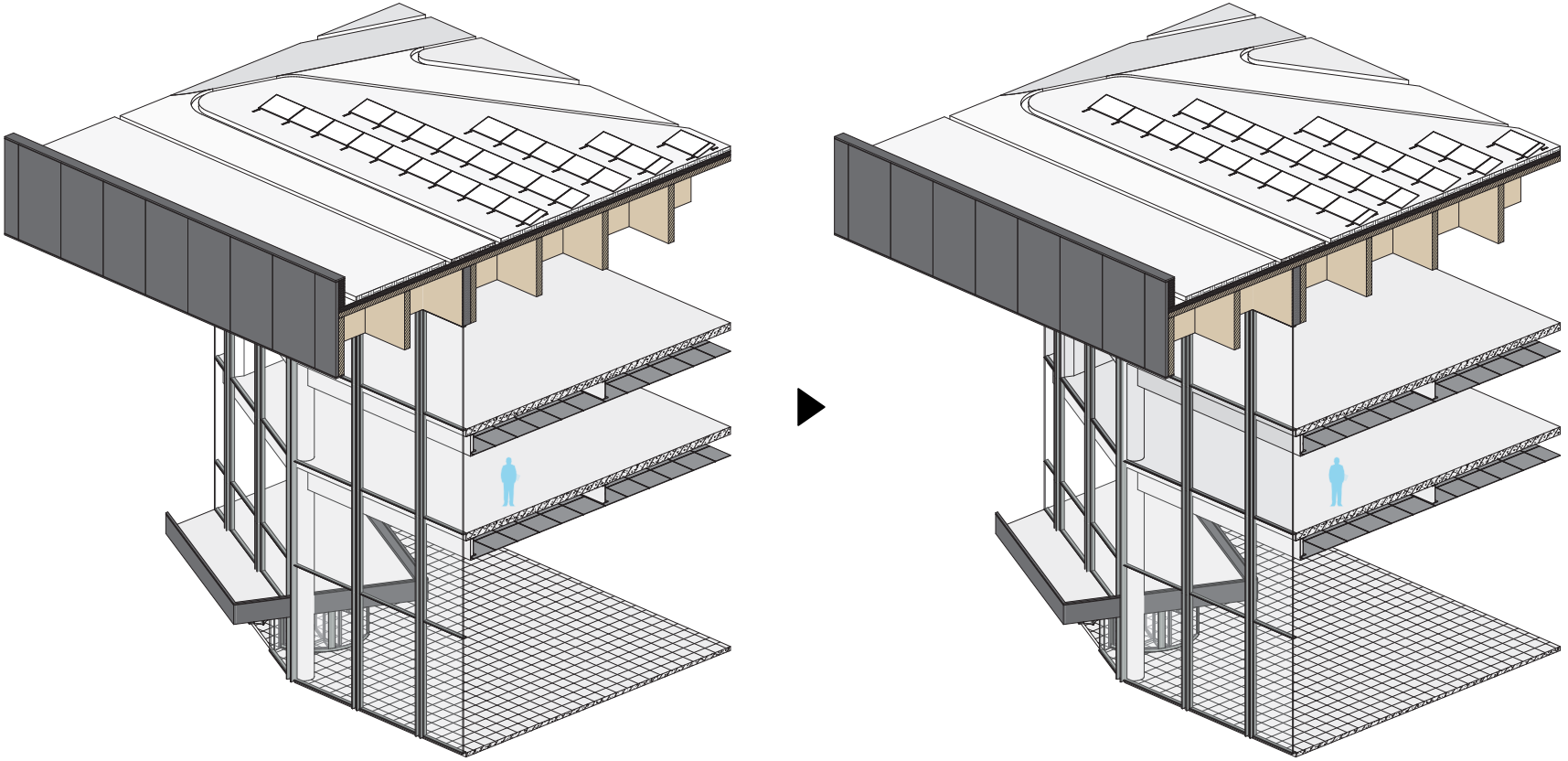




**The building reconfigures its layout to provide enough space for the workshop by connecting the adjacent classroom by opening the partition wall...**

# ADAPTABILITY

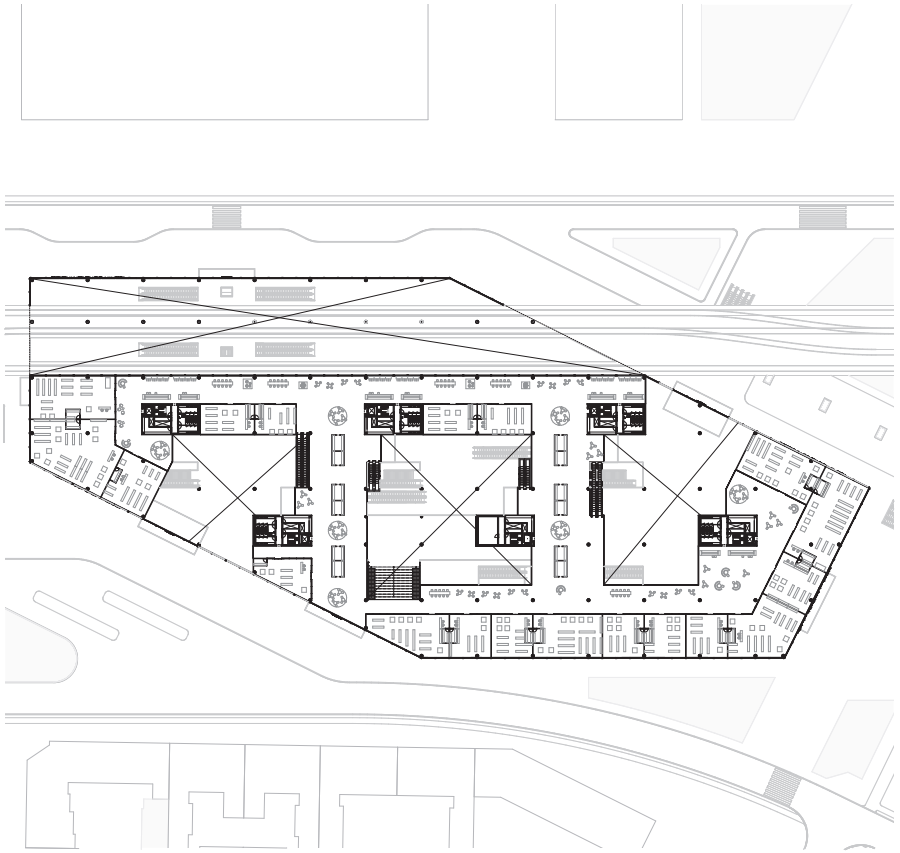
# ADAPTABILITY

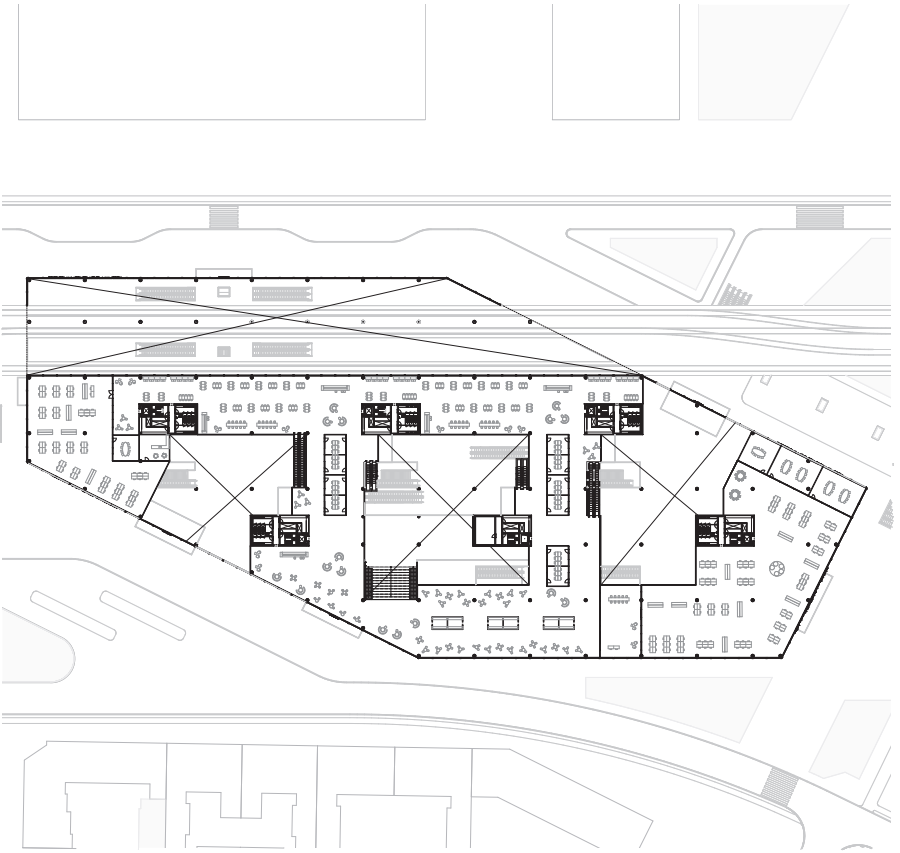
# ADAPTABILITY



**The facade can also be adapted to the use of the space behind it by adjusting the tint of the glass to the desired amount of daylight...**

# ADAPTABILITY

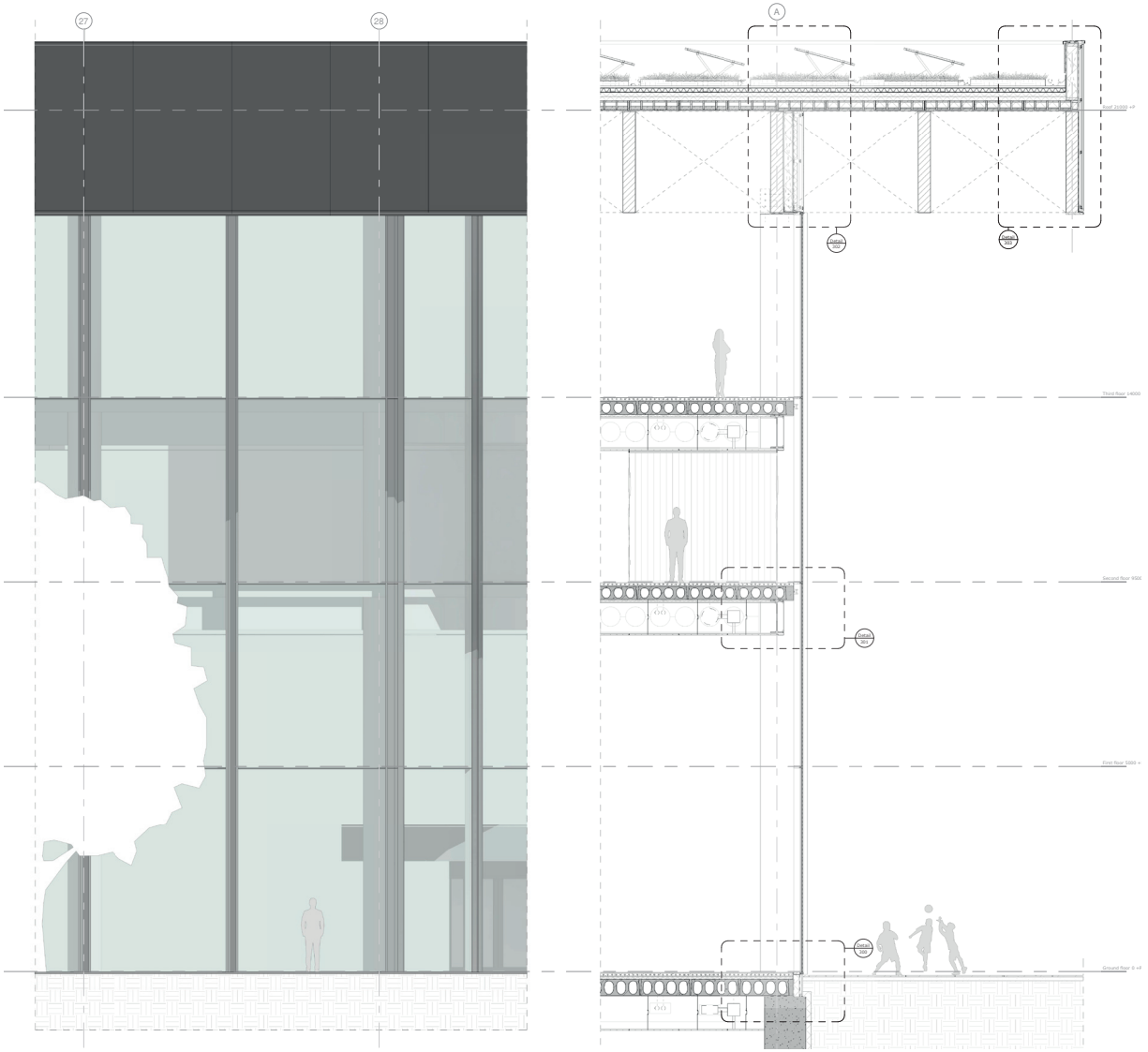


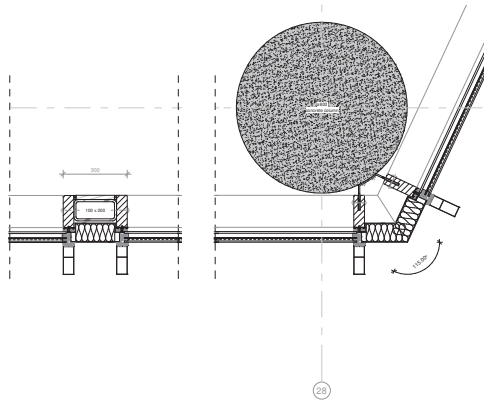


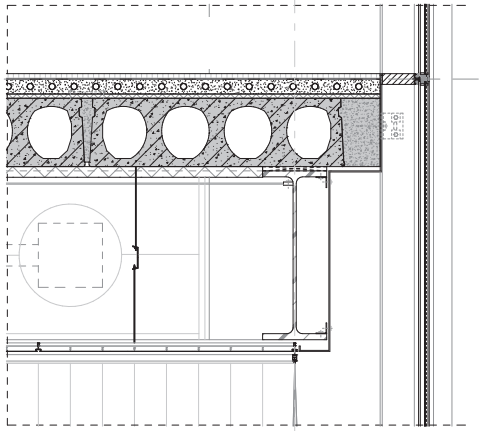
**Through its flexible layout. The building can also facilitate other types of program...**

Travel perspectives

# FRAGMENT





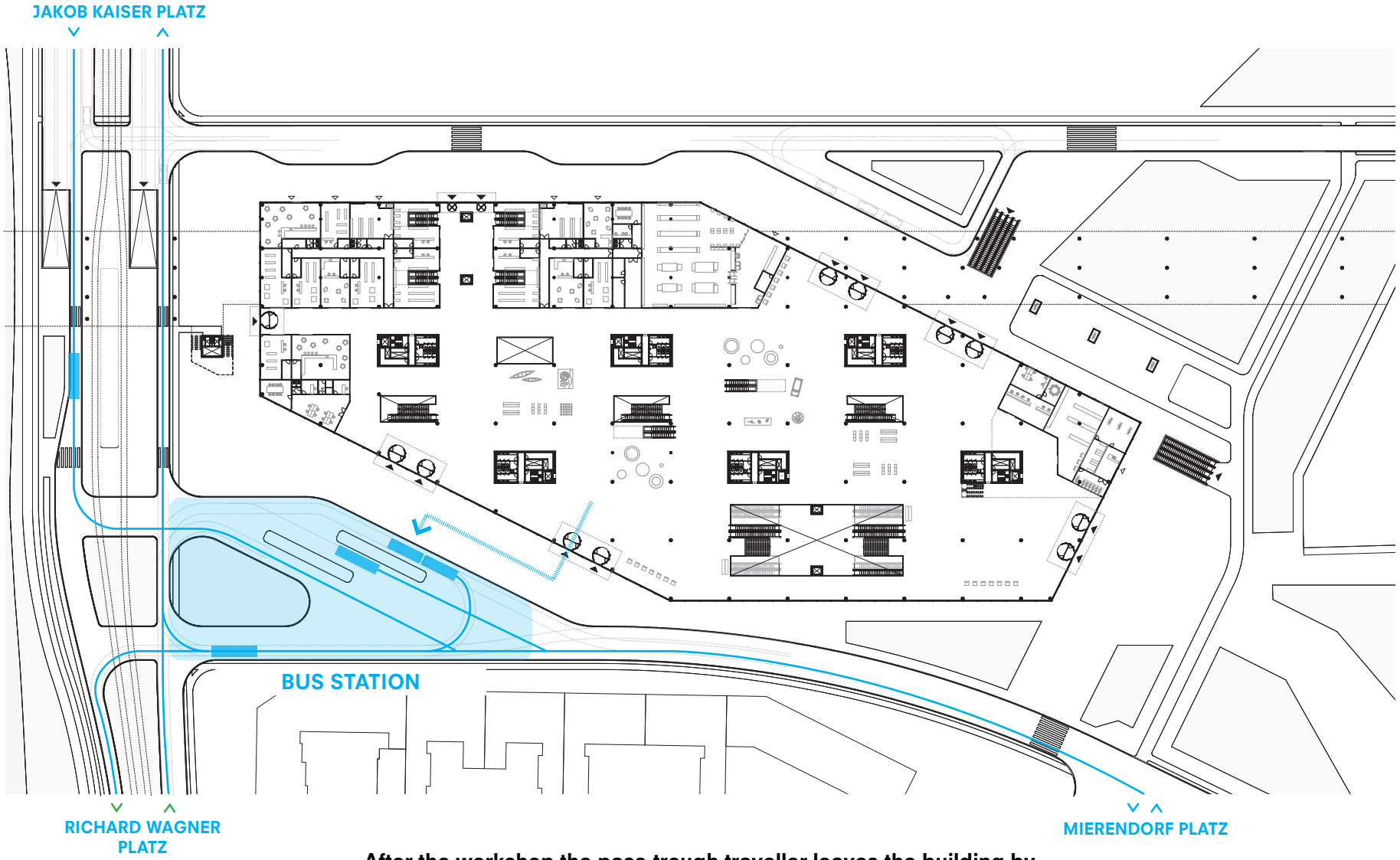


**The curtain wall facade maximizes daylight in the building. Also provides configuration of the infill in the future...**

Travel perspectives

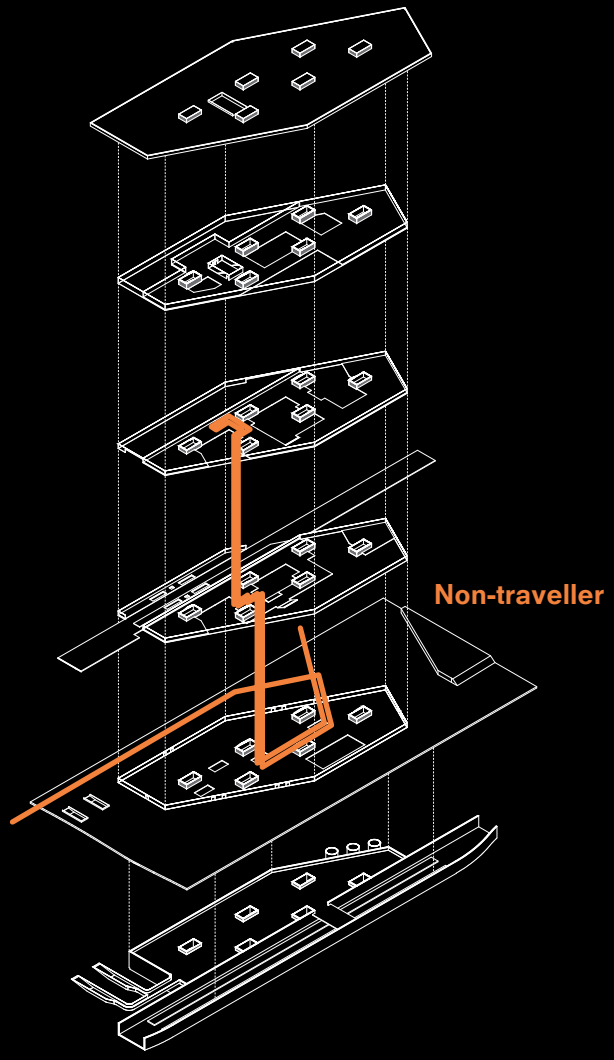
# CURTAIN WALL FACADE

# PASS-THROUGH TRAVELLER



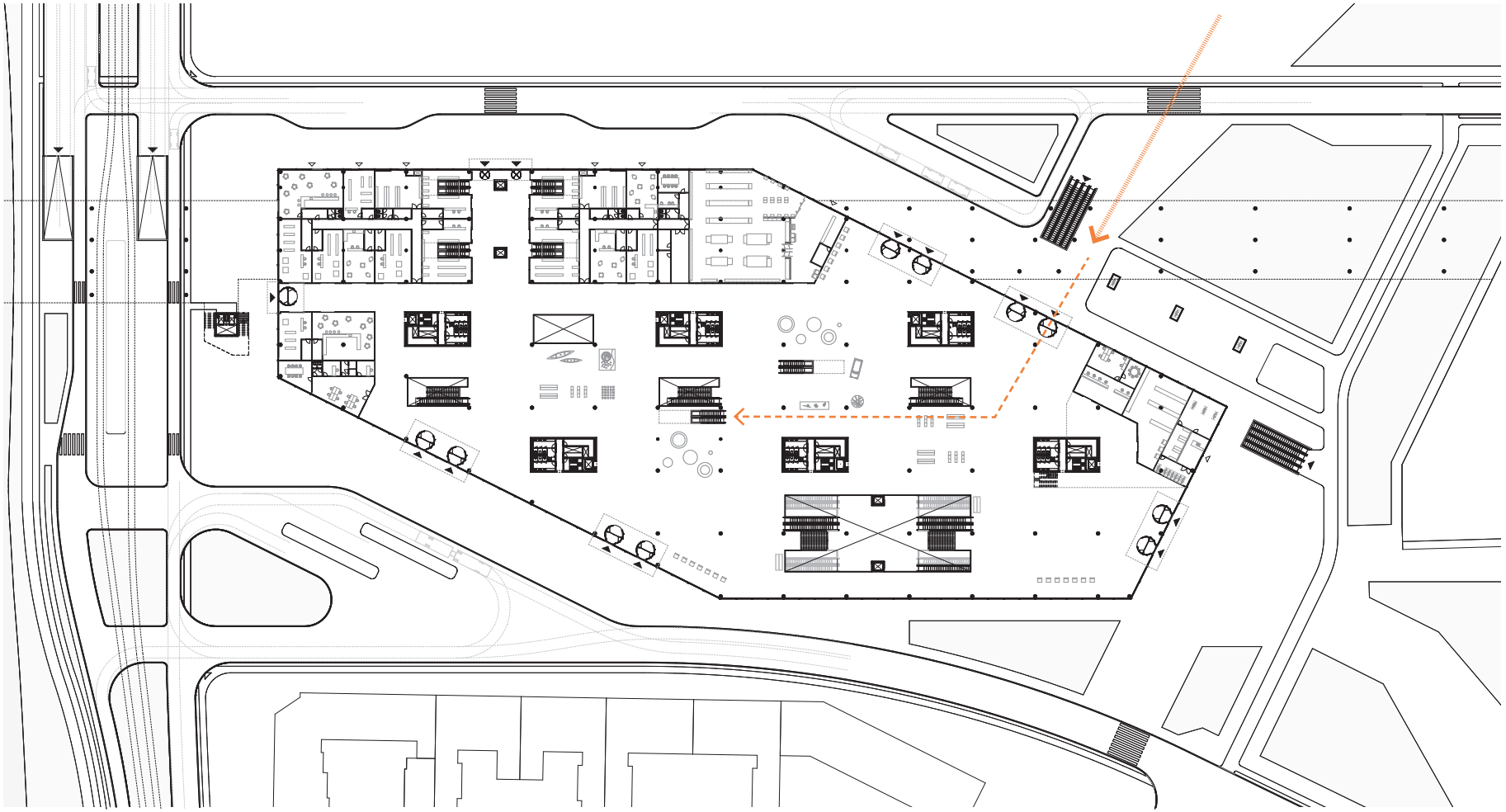

**After the workshop the pass-trough traveller leaves the building by bus.**

# TRAVEL PERSPECTIVES



Travel perspectives

# NON-TRAVELLER

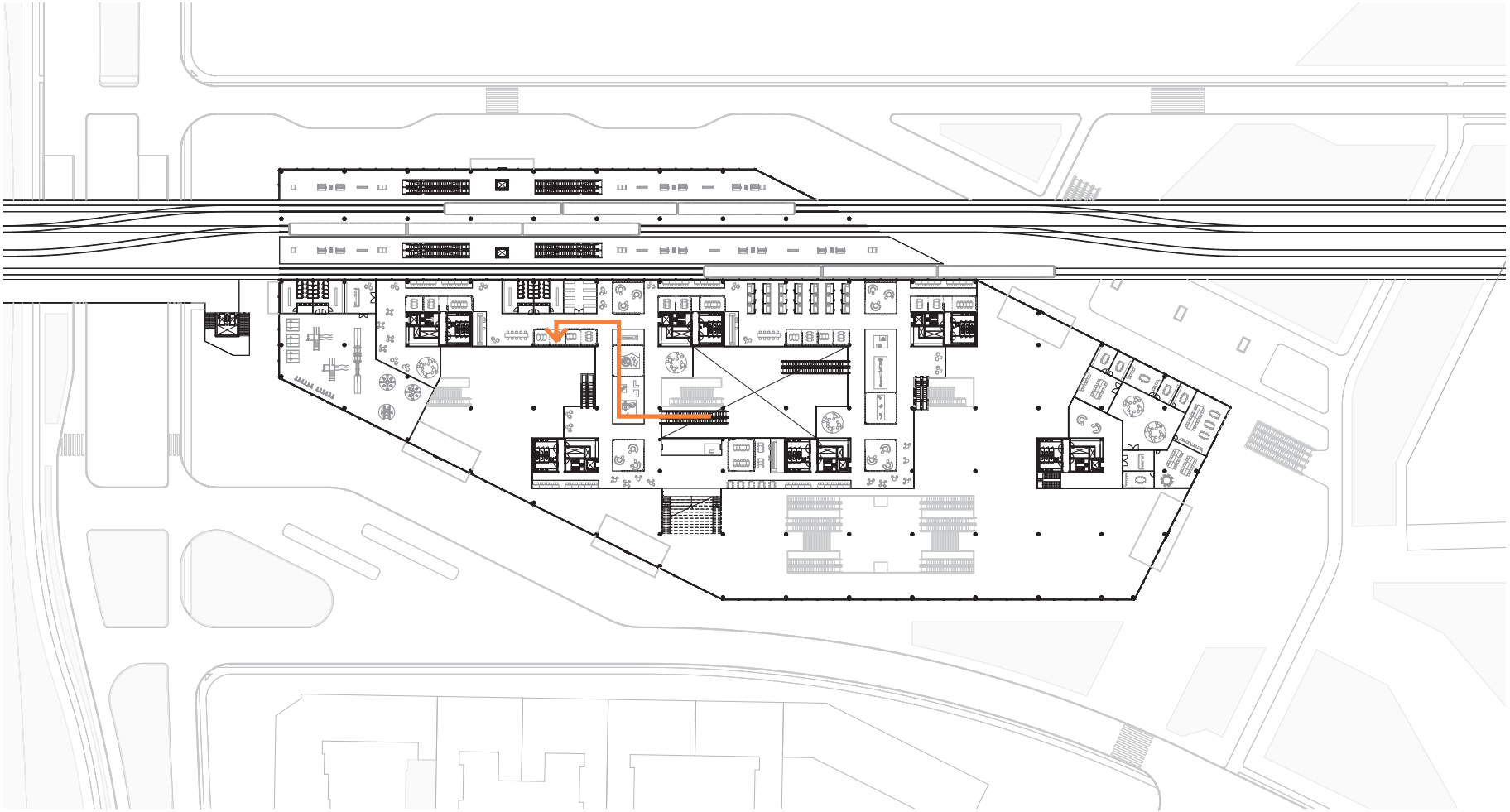


**The non-traveller arrives on foot and uses the station during its off-peak hours. They arrive at the building's north entrance...**

# NON-TRAVELLER

Travel perspectives

# NON-TRAVELLER



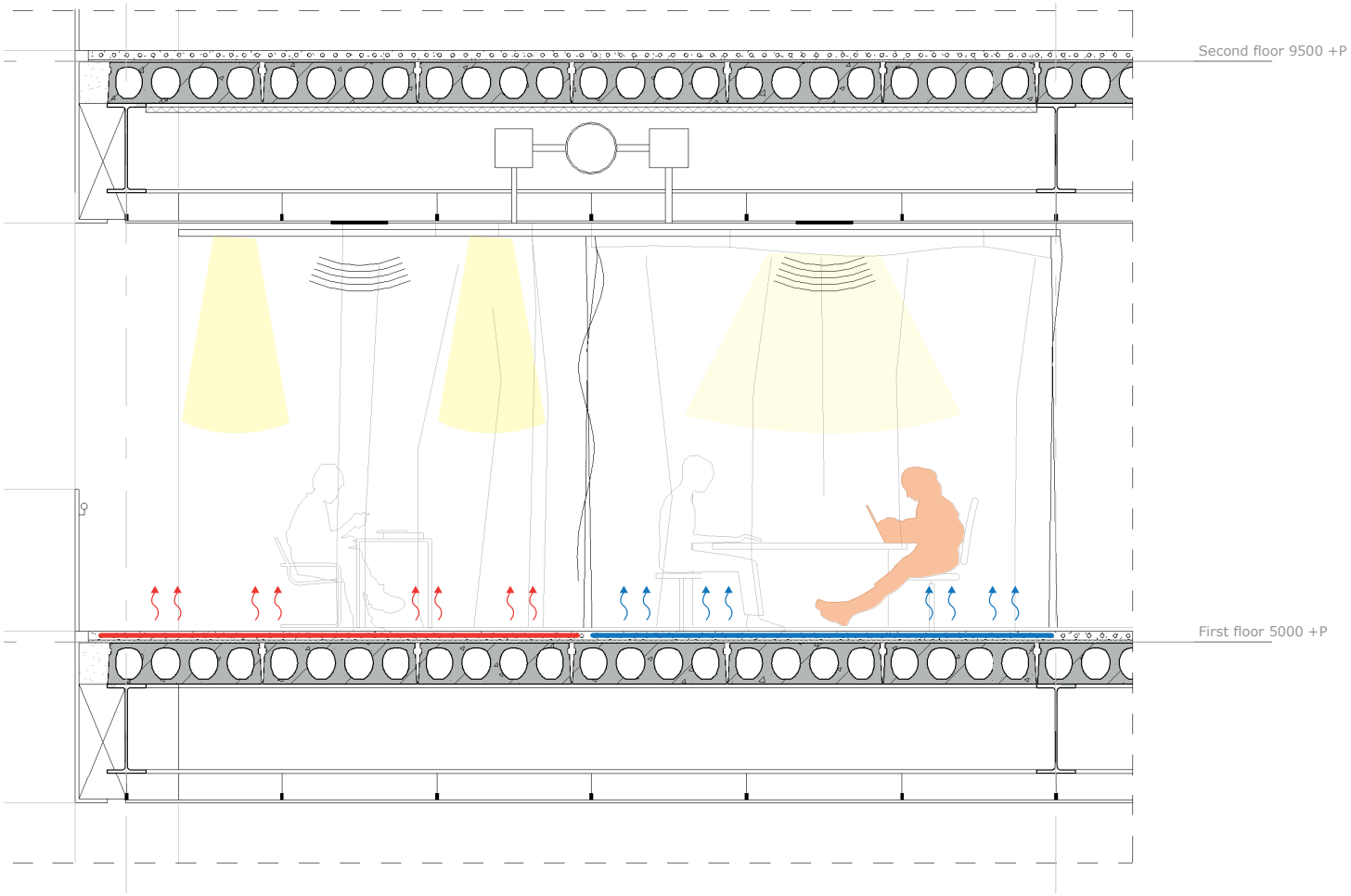
**The traveller has an online meeting which he can hold in three different types of workspaces in the building...**

# CURTAIN ZONE

# CURTAIN ZONE

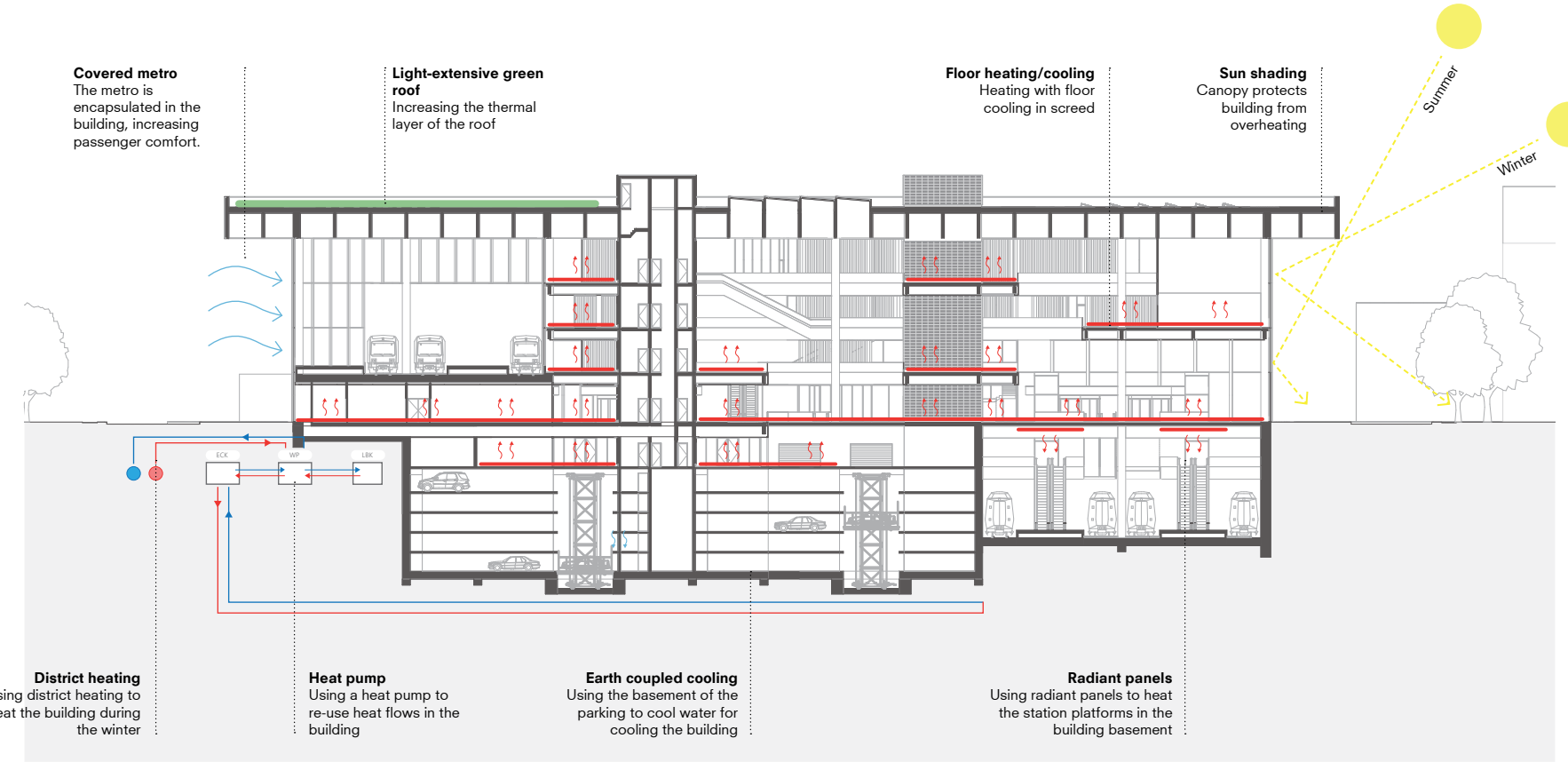
Travel perspectives

# NON-TRAVELLER



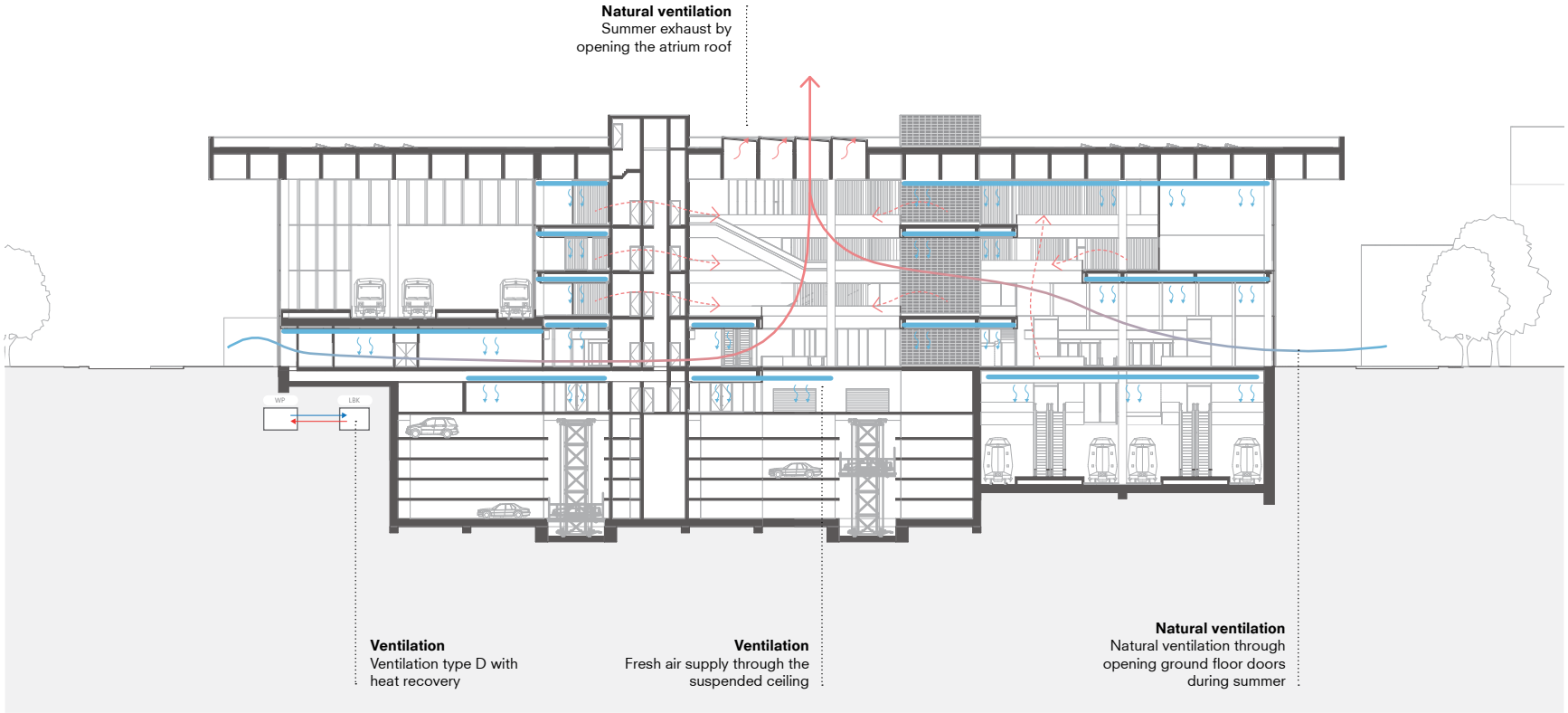

**Spot heating and cooling of the space can be controlled, as light intensity, and he can use the sound system...**

# CLIMATE




**District heating and earth-coupled cooling. Sunshade protects the building from overheating...**

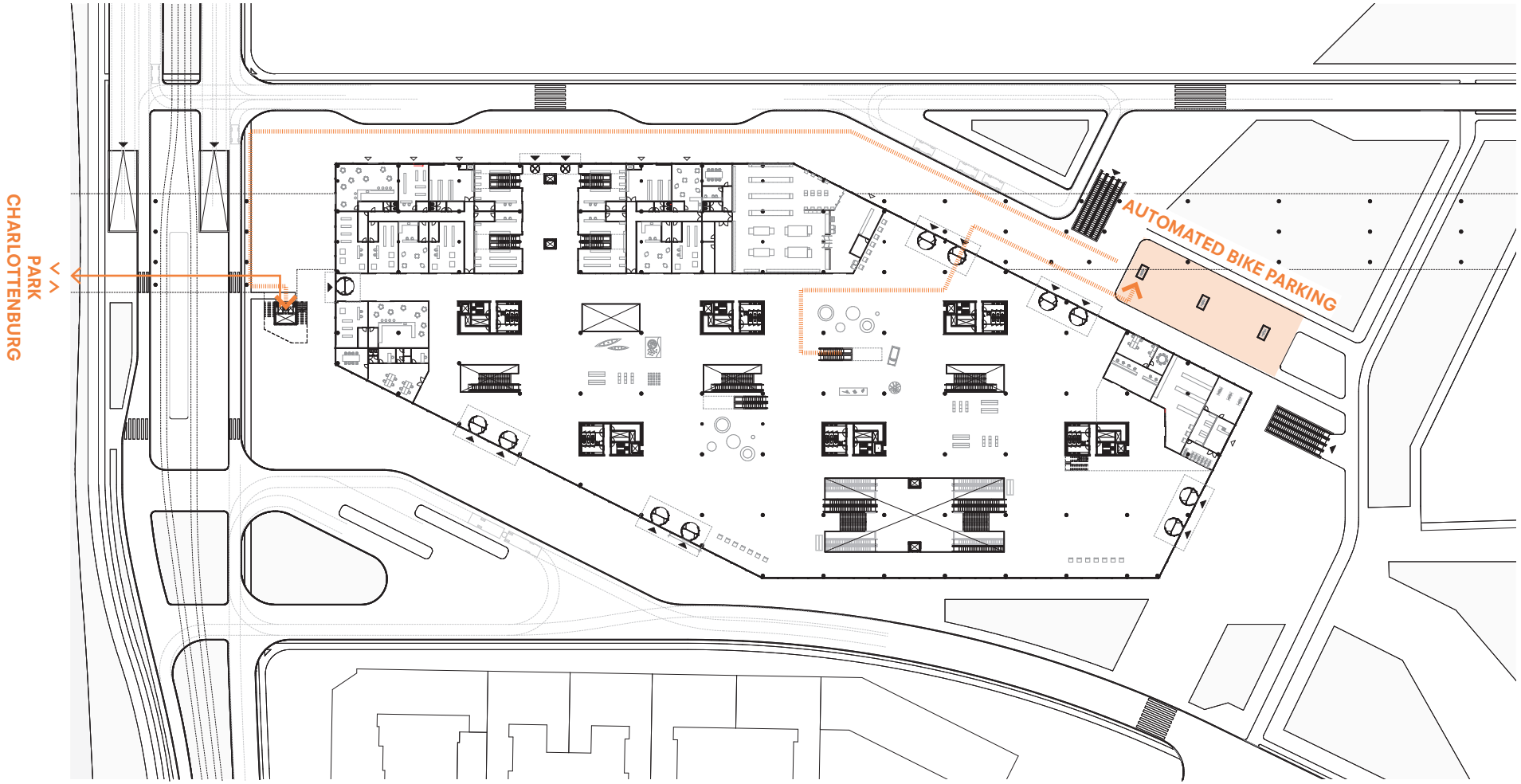
# VENTILATION




**Ventilation from the ceiling of the building. In summer, natural ventilation through the atrium roof...**

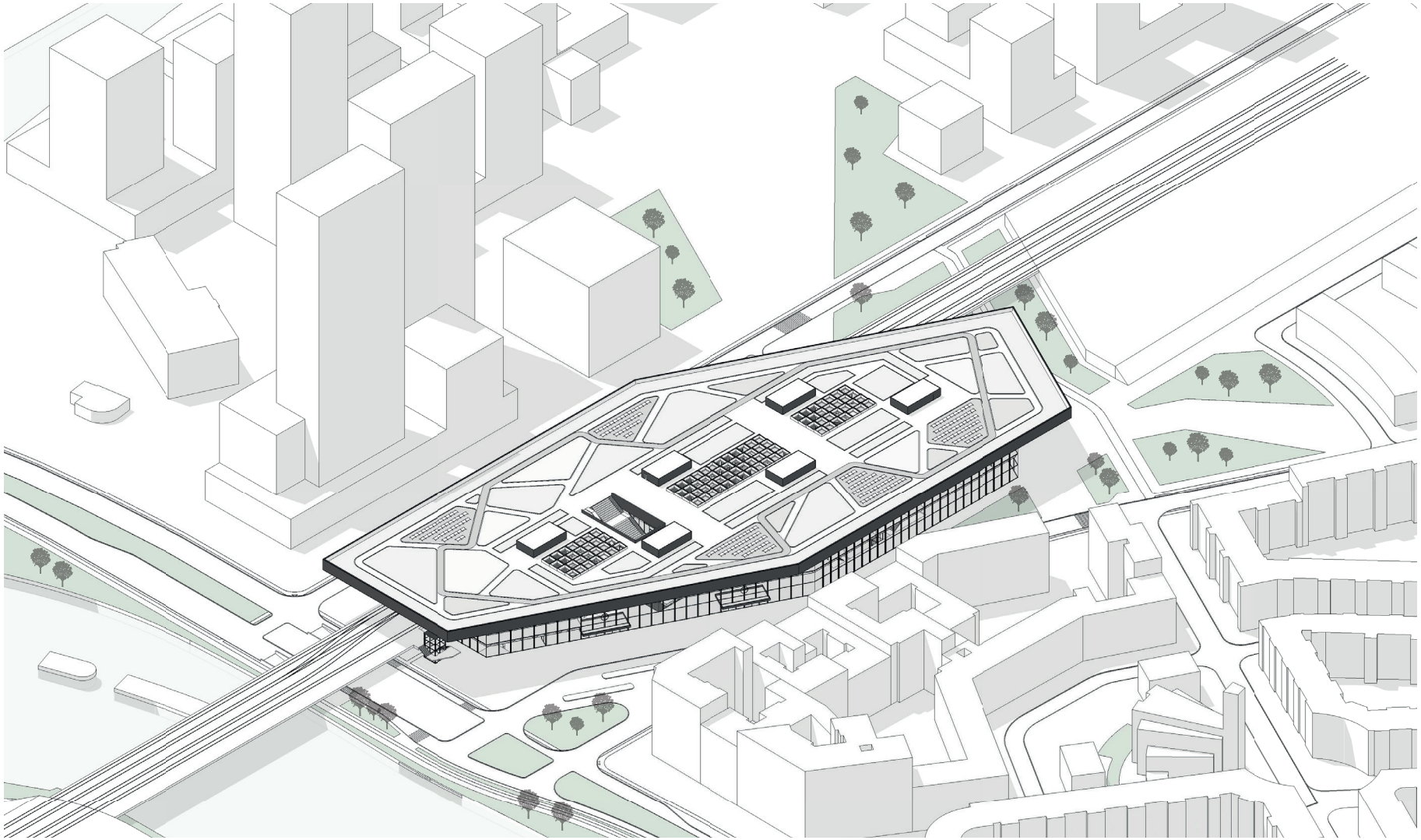
Travel perspectives

# NON-TRAVELLER




**The traveller leaves the station by picking up their bike at the bike rejection pods, cycles towards the bike bridge, and leaves the station area through the adjacent park...**

# DESIGN OVERVIEW



**Multimodality Forum**
A more service and experience-related approach towards train stations.

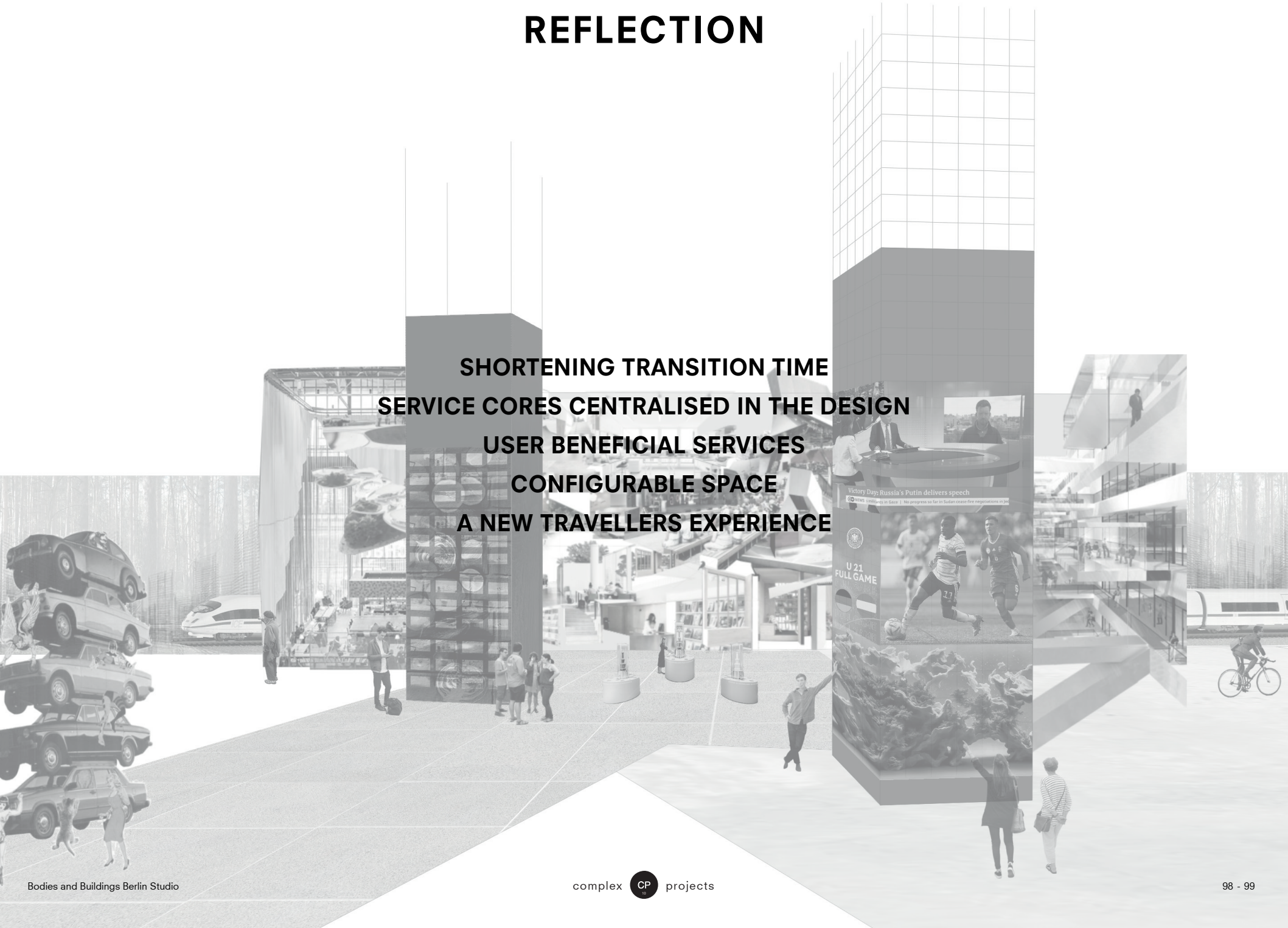
Conclusion

# REFLECTION


**HOW CAN AUTOMATION TECHNOLOGIES BE INTEGRATED IN ARCHITECTURAL DESIGN TO POSITIVELY INFLUENCE USER EXPERIENCE AND OPTIMIZE THE USE OF SPACE?**

Conclusion

# REFLECTION




**SHORTENING TRANSITION TIME**

**SERVICE CORES CENTRALISED IN THE DESIGN**

**USER BENEFICIAL SERVICES**

**CONFIGURABLE SPACE**

**A NEW TRAVELLERS EXPERIENCE**


# THANK YOU!