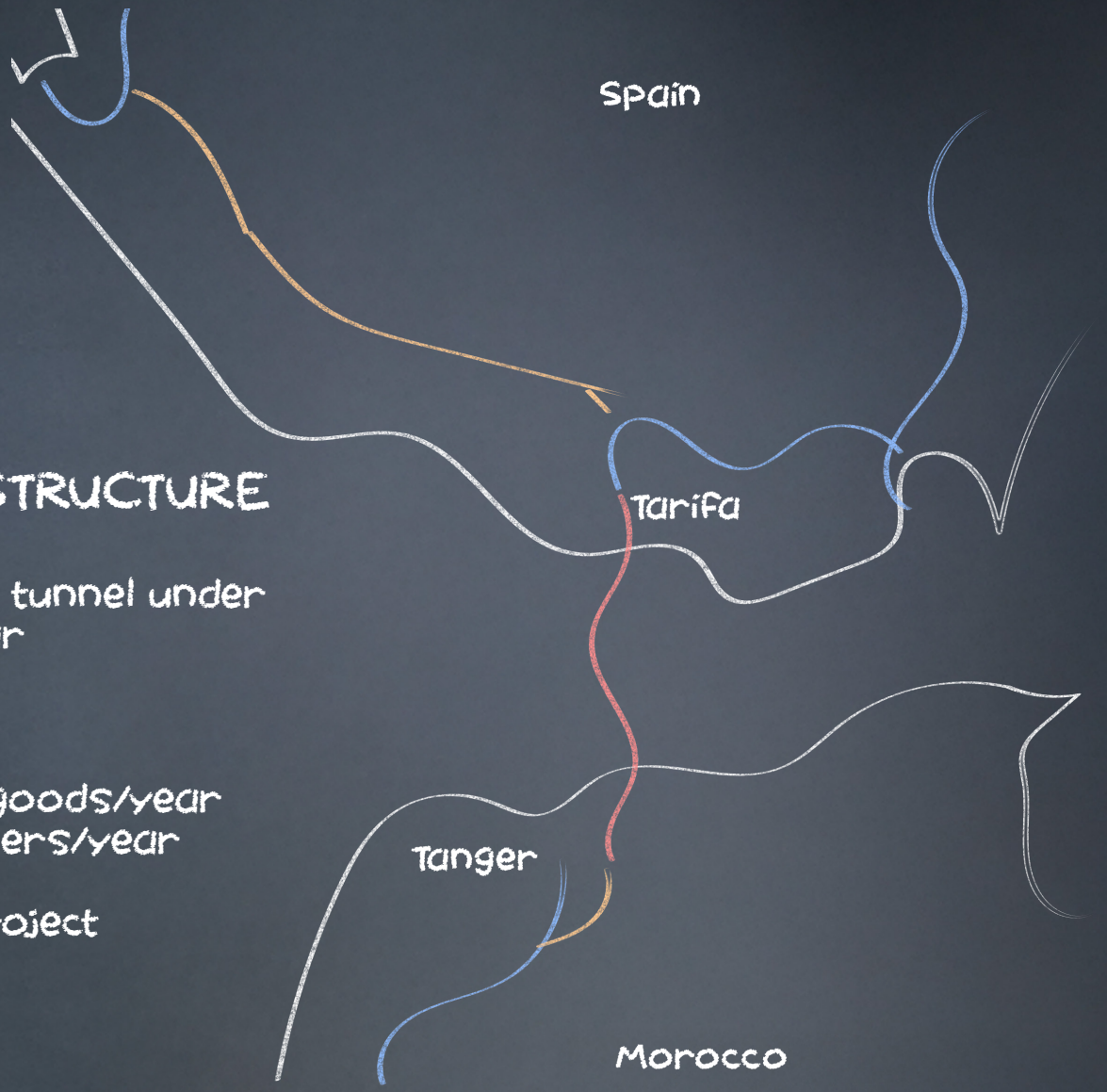


Lines of Power

The path of Al Boraq through, power, politics and progress

Research Abrar Asag-Gau 5015545



MEGA INFRASTRUCTURE PROJECT:

undersea railway tunnel under Strait of Gibraltar

Trade

13 million ton of goods/year
12 million passengers/year

Revenue based project

TIMELINE

2022
SIGNED AGREEMENT

2024-2026
FEASABILITY STUDY

2026-2030
CONSTRUCTION

2030-2045
IN SERVICE

Problem statement:

Despite Tangier's rapid growth and modernization, the benefits of this transformation have not been evenly distributed across all districts. Wealthier areas have reaped the rewards of large-scale infrastructural projects, while marginalized neighborhoods remain disconnected from essential services and opportunities (Wippel, 2018).

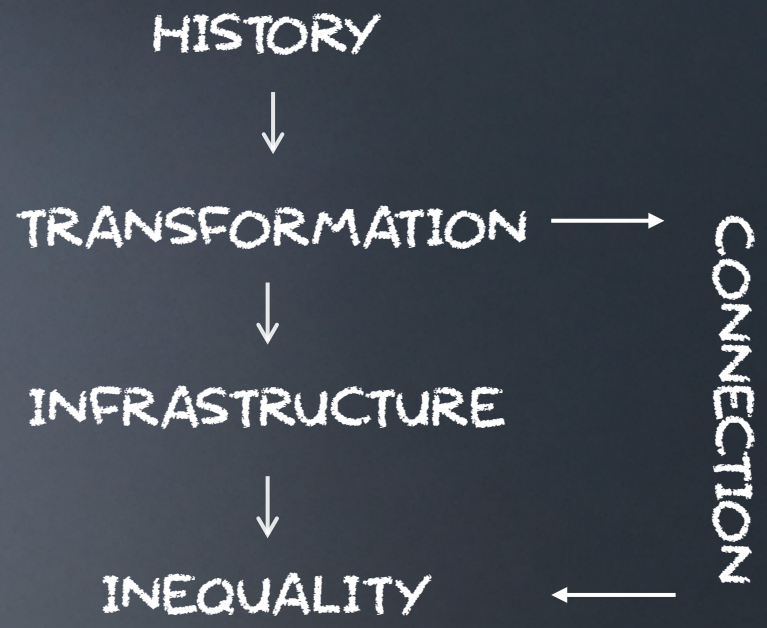
How can infrastructure projects like the Tunnel be designed and implemented to address socio-spatial divisions and promote equitable development in Tangier?



Problem statement:

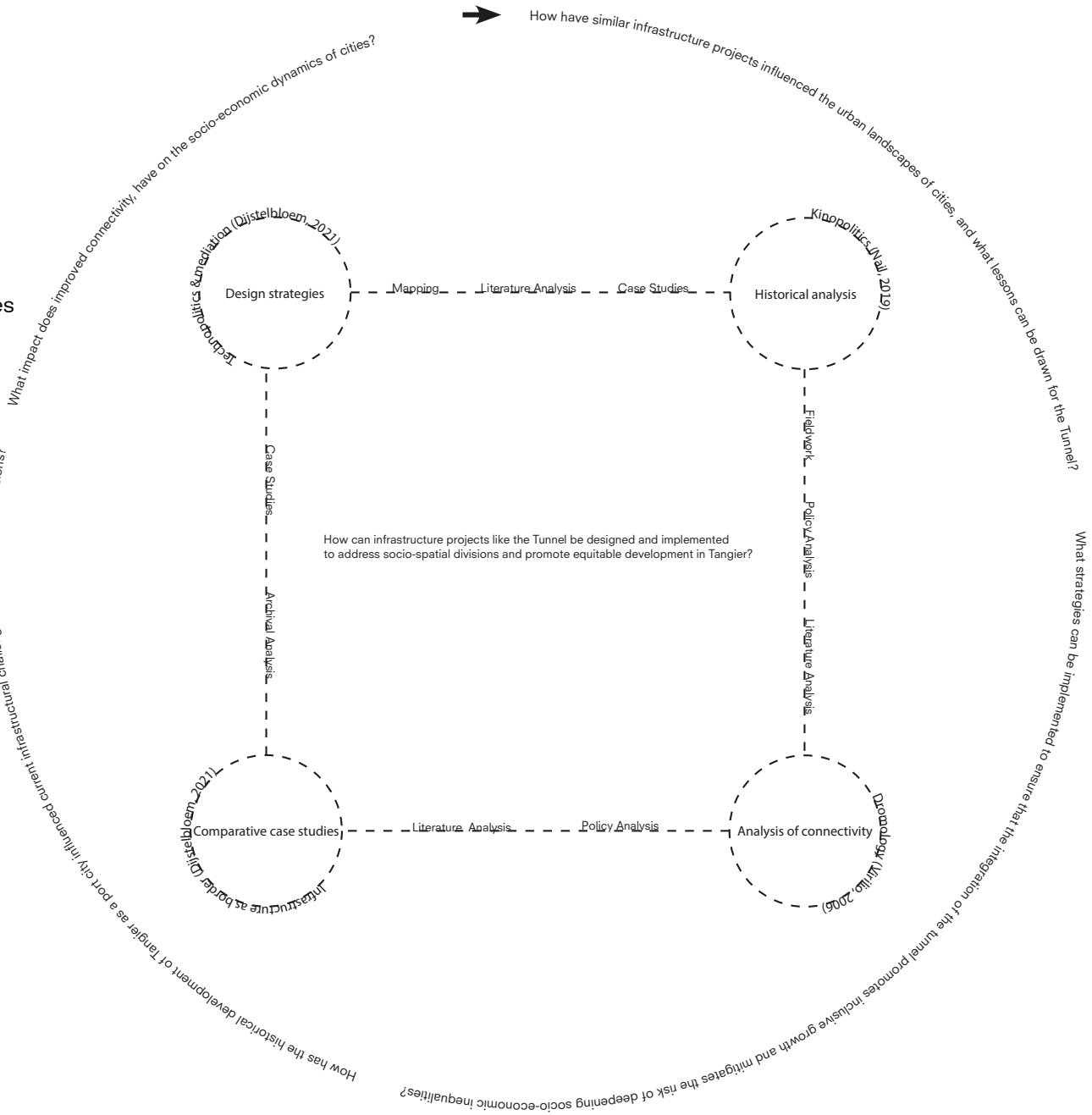
Despite Tangier's rapid growth and modernization, the benefits of this transformation have not been evenly distributed across all districts. Wealthier areas have reaped the rewards of large-scale infrastructural projects, while marginalized neighborhoods remain disconnected from essential services and opportunities (Wippel, 2018).

How can infrastructure projects like the Tunnel be designed and implemented to address socio-spatial divisions and promote equitable development in Tangier?



Main takeaways:

Infrastructure is deeply political
Speed and access are unequal
Megaprojects can deepen inequality
Design choices reflect power dynamics
Mobility must be viewed through broader lenses





PICTURE MUSEUM, OLD CUSTOMCONTROL TANGIER



Colonization → INTERNATIONAL CITY

KNOWLEDGE
NETWORKS.CA

1869 Inspired by SEUZ CANAL

Cooperation agreement in 1981



EEN TUNNEL ONDER DE STRAAT VAN GIBRALTAR

In 5 dagen van Brussel naar Kongo

Kaart van de Straat van Gibraltar en omgeving.

de voordeelen plukken van dit reusachtige werk, waarvan de verwezenlijking zonder voorgaande zal zijn in de geschiedenis. [illegible] vergelijken zijn op dien van het Suez- en het Panamakanaal. Wanneer Frankrijk dan zal klaar zijn met zijn Transsaharien-spoorweg, dan zal men van Parijs uit op drie à vier dagen Senegal kunnen bereiken en dan zal Brussel nog slechts 5 à 6 dagen van Kongo liggen.

De tunnel van Gibraltar zal een totale lengte hebben van 32 kilometer en zal op een diepte van 380 meter worden aangebracht.

Het is eigenlijk verkeerd van een tunnel te spreken, want het ontwerp voorziet den bouw van twee tunnels, die elk 6 meter breed zijn en evenwijdig van elkaar loopen. Het onderhoud, de verlichting en bijzonder de verluchting — zeer delicaat vraagstuk op die diepte — zullen verzekerd zijn door de meest volmaakte procédés van de moderne techniek. De naam « Tunnel van Gibraltar » is eigenlijk niet juist, want indien het waar is dat de dubbele tunnel onder de straat passeert waaraan de fameuse rots haar naam gegeven heeft, het

HET plan voor dezen tunnel, dat reeds twee jaar lang ter studie ligt, zal binnenkort ook daadwerkelijk ten uitvoer worden gebracht. Geologen en ingenieurs zijn het erover eens dat er uit technisch oogpunt niets nog den bouw van den tunnel in den weg staat.

Het onmiddellijk resultaat van den bouw van den tunnel zal zijn dat de spoortrein, de post- en de telegraaf direct met die van Noord-Afrika kunnen aansluiten. Het verkeer zal een sterke uitbreiding krijgen en de geografische en strategische ligging van Spanje zal erdoor verbeteren.

Maar Spanje zal niet alleen

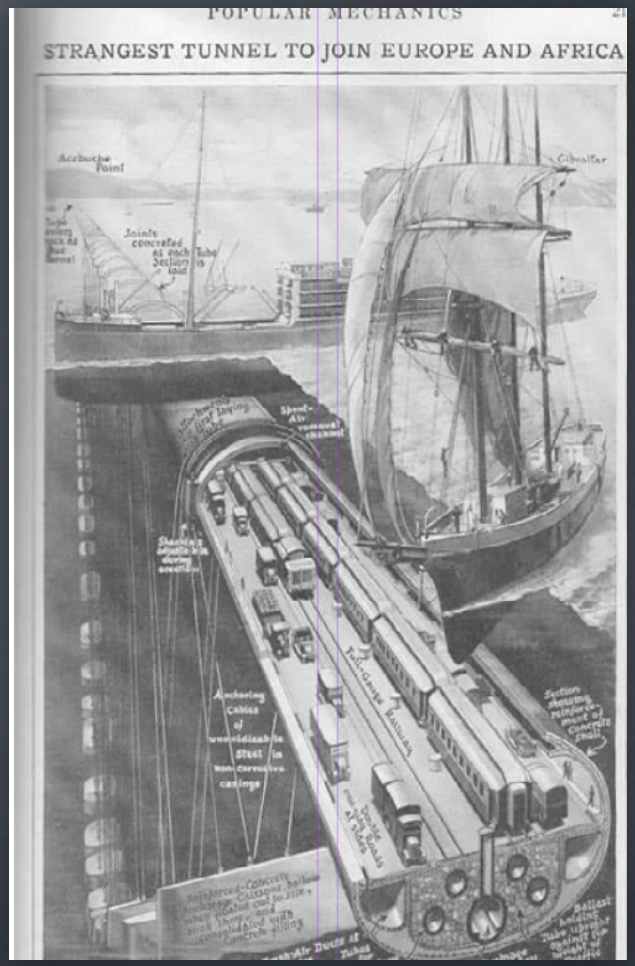
Gisteren nog vandaag

Luchtfoto van Gibraltar met de steile rots.

staat van nu af vast dat hij niet te Gibraltar, maar wel te Torre de la Pena zal beginnen. Hij zal op Afrikaansch grondgebied uitkomen niet ver van Punta Ferdigua, in Spaansch Marokko.

Tanger gezien vanuit de lucht. De in Marokko gelegen versterkte zeestad is amphitheatergewijze gebouwd aan de helling van een kaal kalkgebergte. Het is de belangrijkste handelsstad van Marokko.

1933



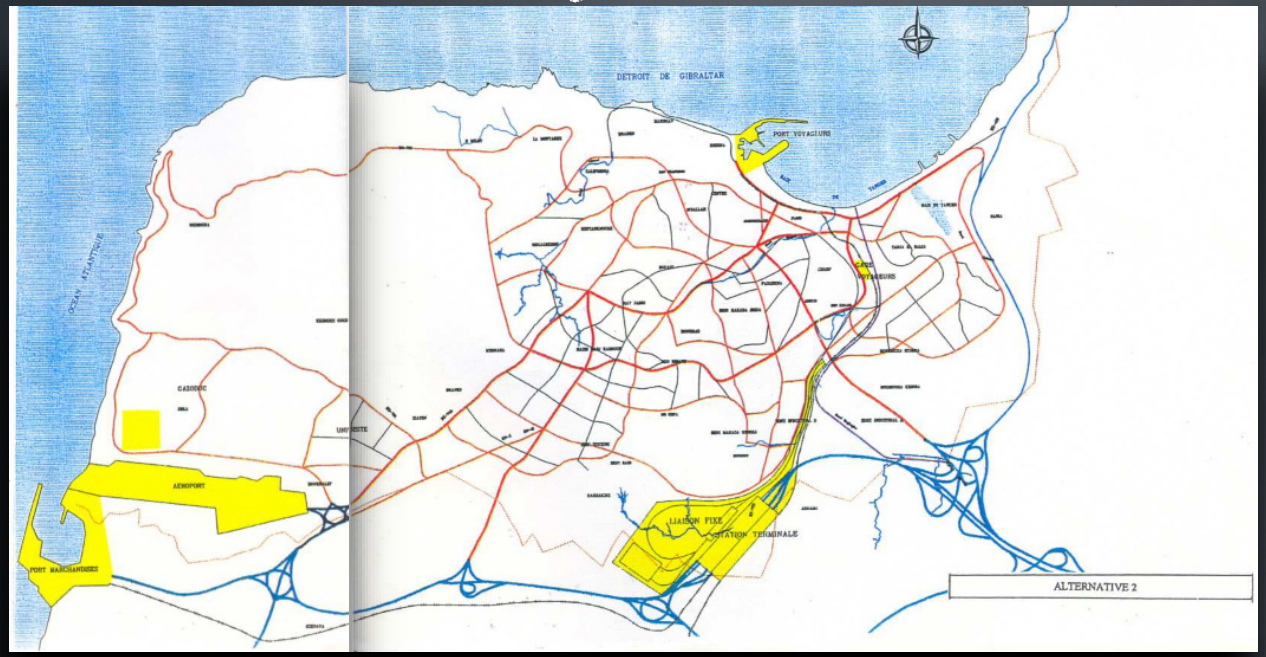
POPULAR MECHANICS

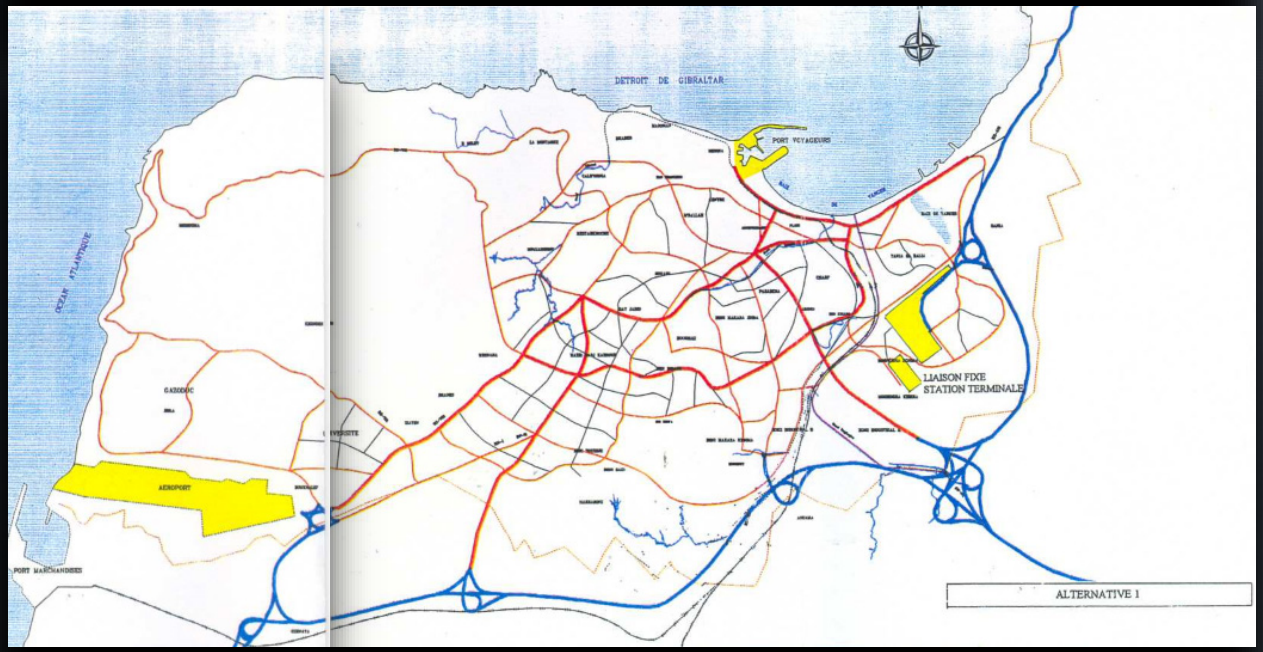
STRANGEST TUNNEL TO JOIN EUROPE AND AFRICA

1926

GISTEREN NOG VANDAAG, POPULAIR MECHANICS

Envisioned Mega projects 1999





SEAPORT,

AIRPORT,

HIGHWAY



power, vision, technological prowess

Symbols of ambition, progress or competitiveness on the global stage

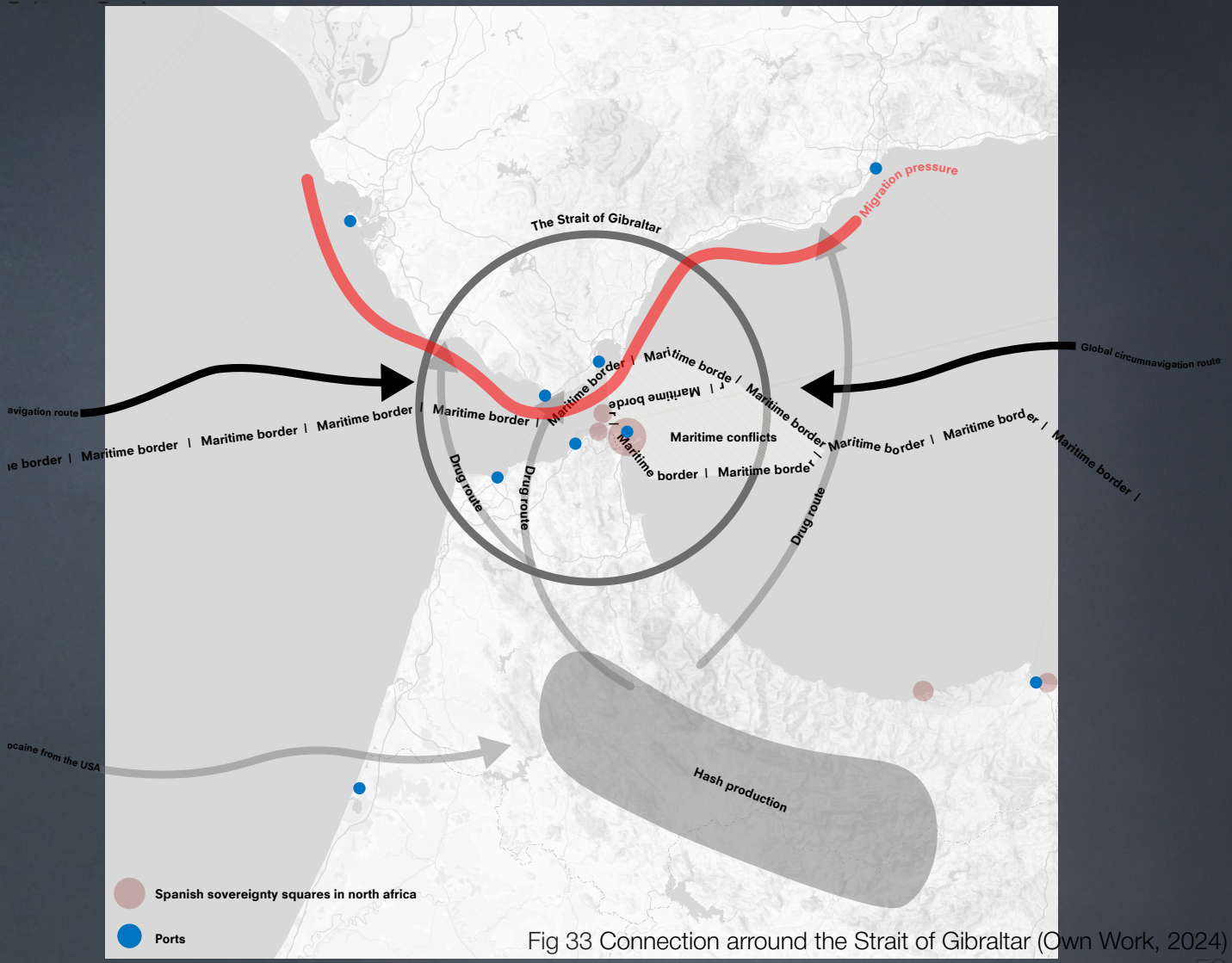
Inspire public support



Lines of Power

The path of Al Boraq through, power, politics and progress

Research Abrar Asag-Gau 5015545

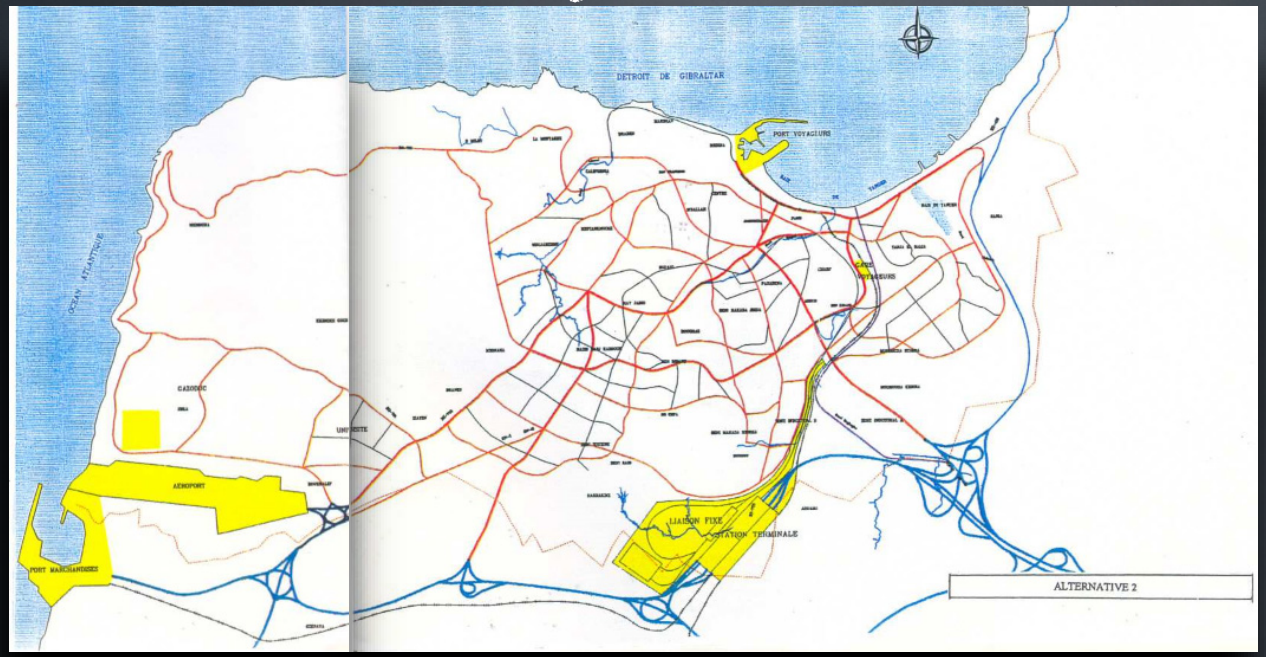

The Strait of Gibraltar
Migration pressure
Global circumnavigation route
avigation route
ıe border | Maritime border | Maritime border | Maritime

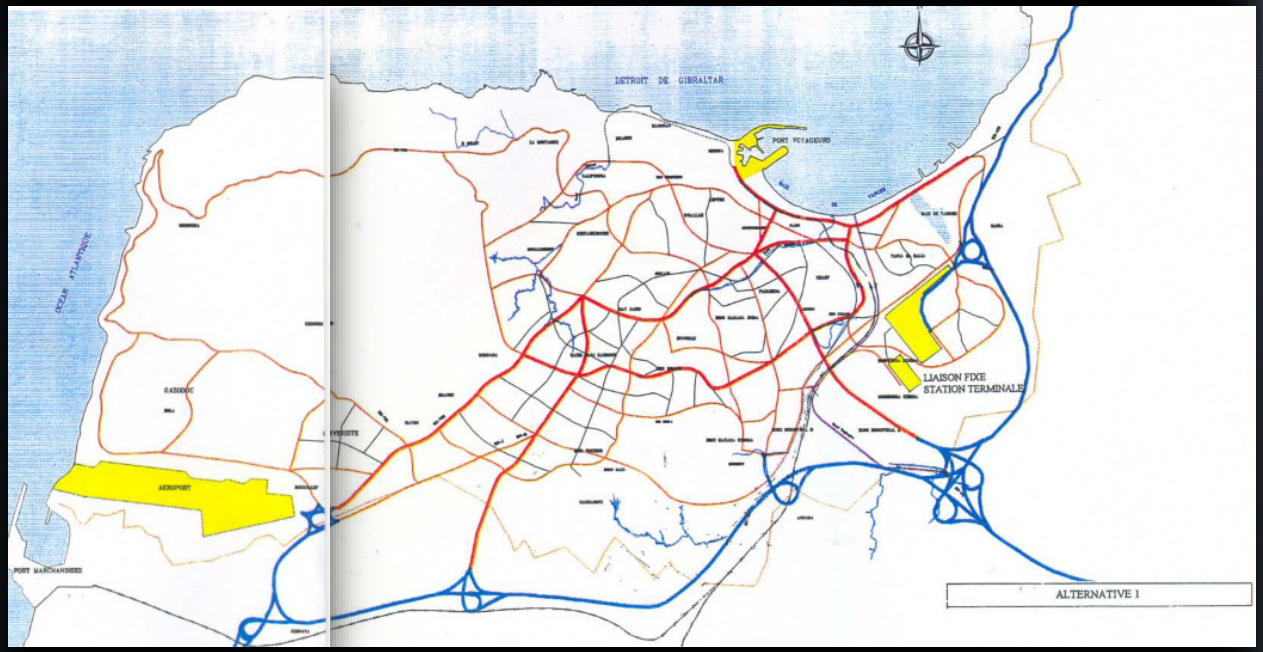
Envisioned Mega projects 1999

SEAPORT,

AIRPORT,

HIGHWAY





TRAIN NETWORK

NEW CONNECTION

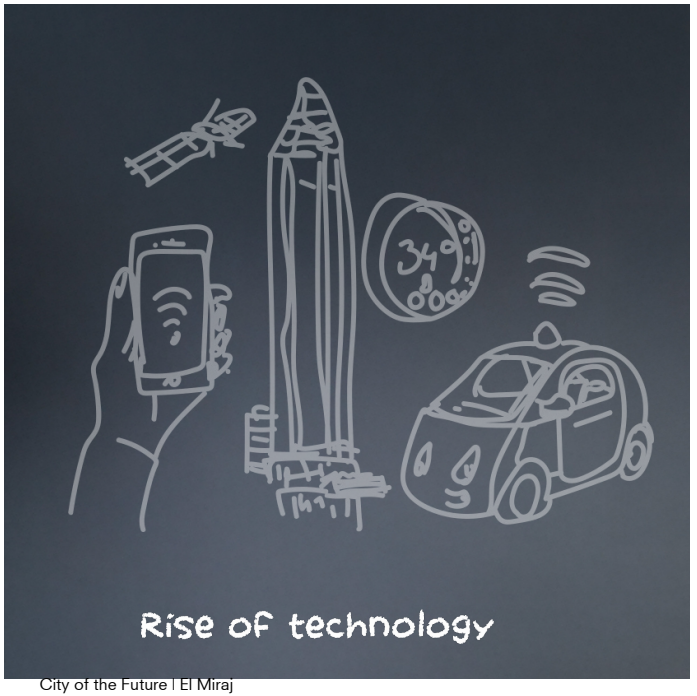




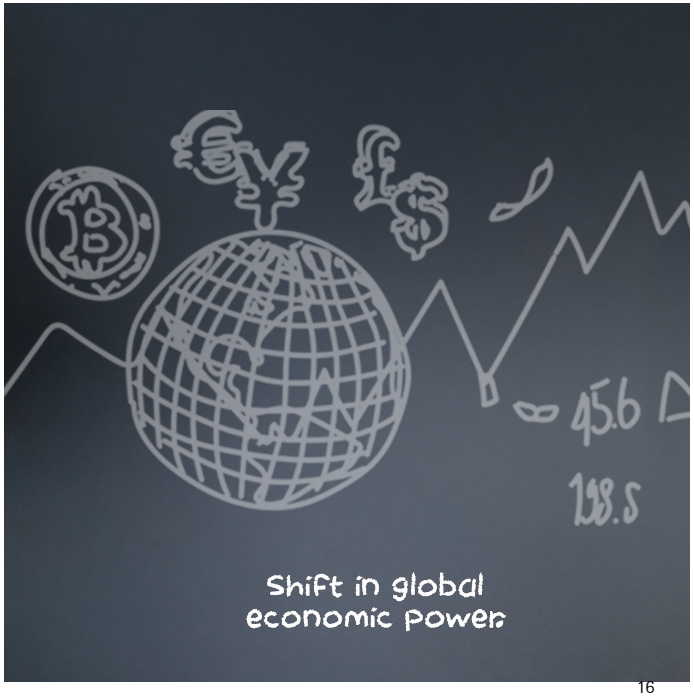

Demographic shifts


Accelerating
Ubanization

TRENDS


Rise of technology


CO2
Climate Change and
Resource Scarcity


45.6
238.5
Shift in global
economic power

Resource scarcity:

Hub for green industrial exports
-Solar plant
-windturbine plant
unevenly distributed; EU investments control key power sources



Noor-Ouarzazate Solar Complex renewable energy

eensuccessstories.com/ 2022


Tanger Medina
4,42 m²/p
Charf
Souani
1,67 m²/p
Charf Mghogha
4,36 m²/p
Bni Makada
0,86 m²/p

Municipality	Urban Typology			
	Landscape History	Green Corridor	Space Around Housing	Space for Leisure
Tangier Medina	26	13	10	8
Souani	0	18	8	2
Mghogha	3	10	8	0
Beni Makada	0	3	6	0

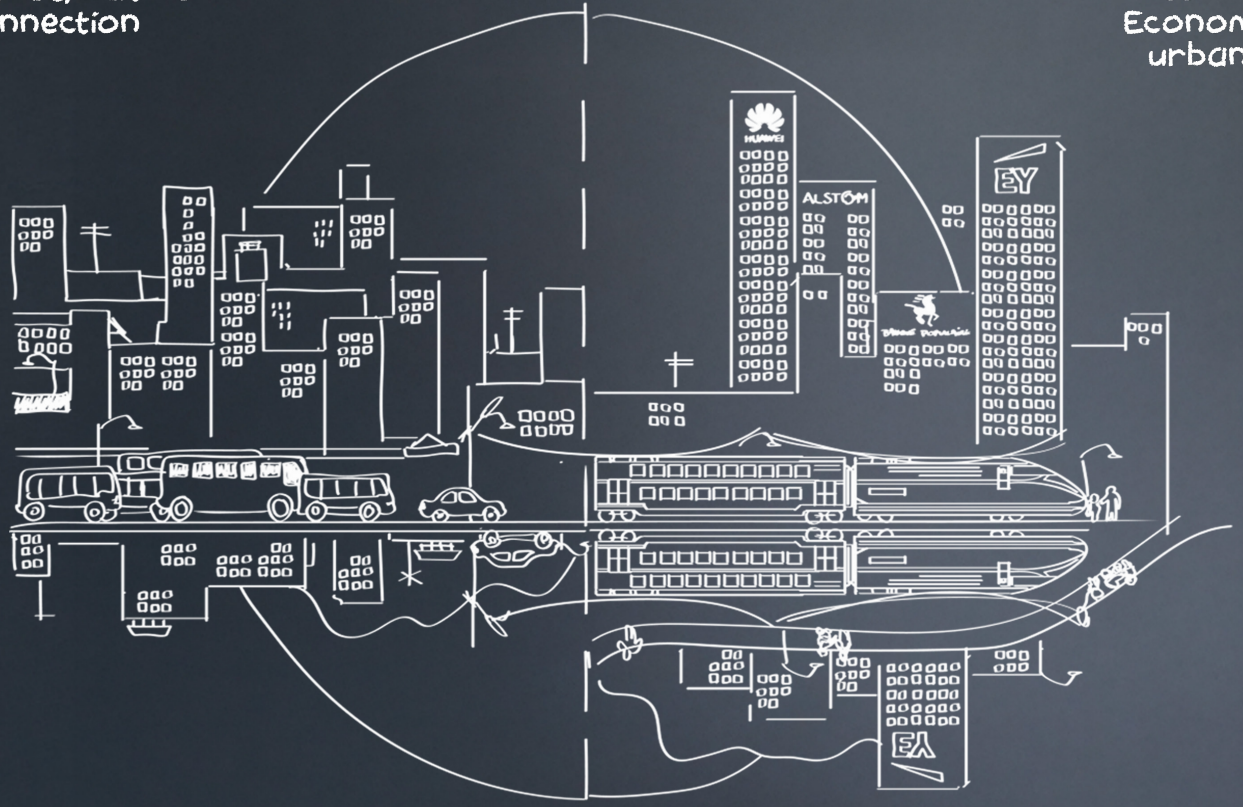
Research

TRENDS



All trends, but no connection

All trends, connection, Economy based urbanisation



All trends, connection, Failed outcome

All trends, connection, Human based urbanisation

Border infrastrcuture

Functions within floorplan



Fig 34 Entrance Morocco through the border of Melilla/Bni Ensar (Satellite, Google maps 2025) (Own work, 2025)

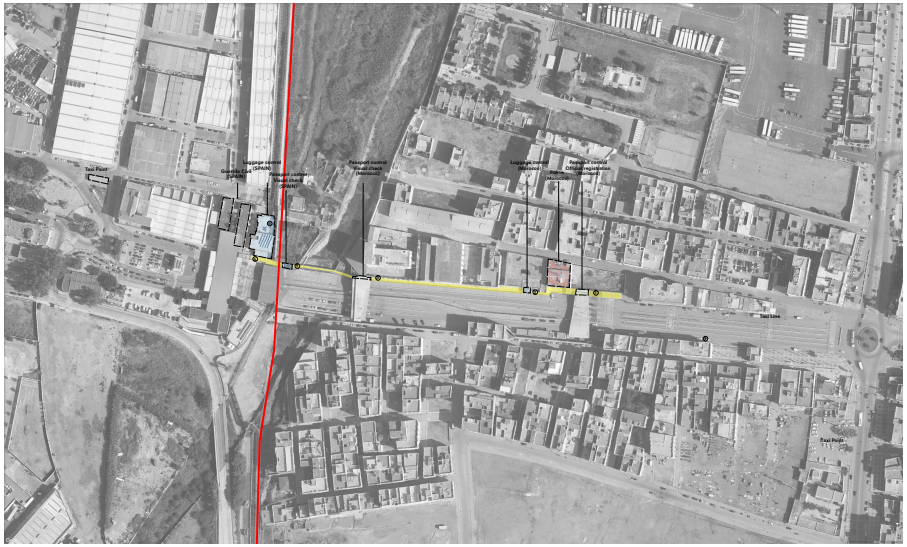
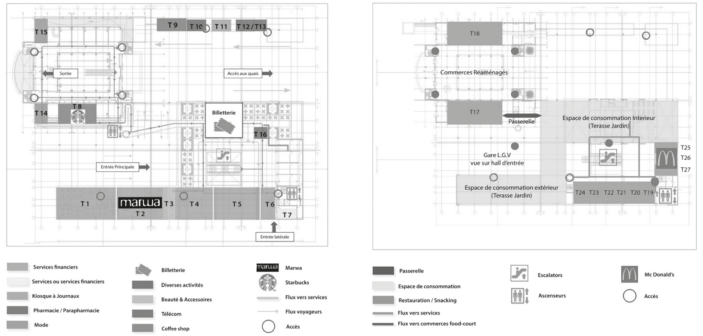
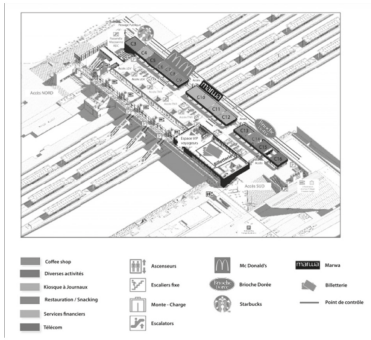


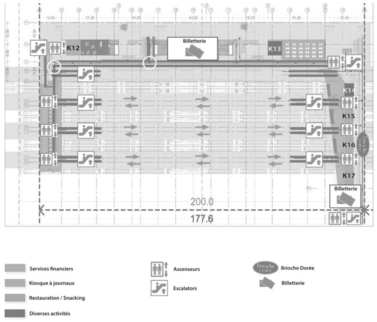
Fig 35 Exit Morocco through the border of Melilla/Bni Ensar (Satellite, Google maps 2025) (Own work, 2025)

TGV Trainstations Morocco

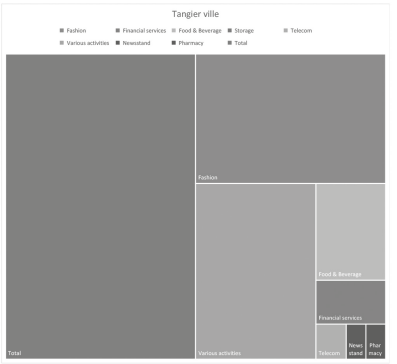
Functions within floorplan

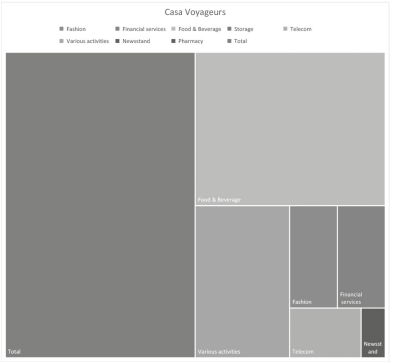






Functions as a diagram





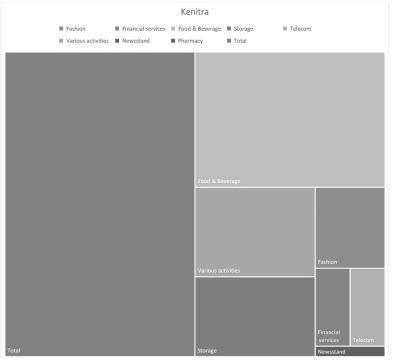


Fig 39 Actual functions TGV trainstations (moroccoworldnews 201) (Own work, 2025)

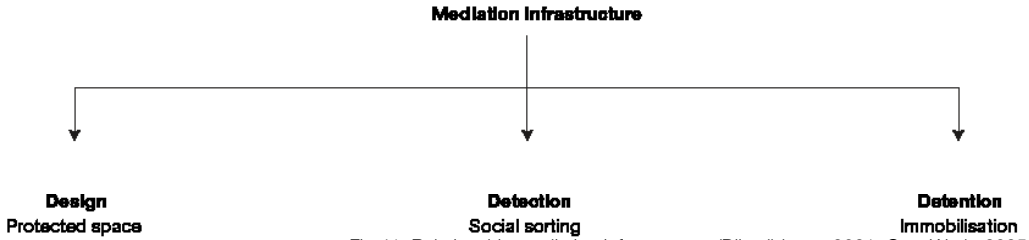
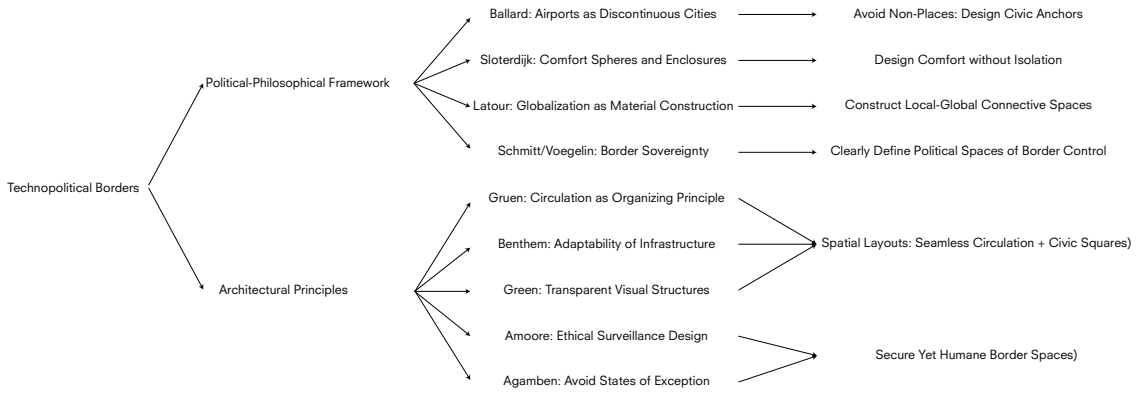


Fig 41 Relationship mediation infrastructure (Dijstelbloem, 2021, Own Work, 2025

Mediation infrastructure: the airport


Technopolitical Borders
Political-Philosophical Framework
Architectural Principles
Ballard: Airports as Discontinuous Cities
Sloterdijk: Comfort Spheres and Enclosures
Latour: Globalization as Material Construction
Schmitt/Voegelin: Border Sovereignty
Gruen: Circulation as Organizing Principle
Benthem: Adaptability of Infrastructure
Green: Transparent Visual Structures
Amoore: Ethical Surveillance Design
Agamben: Avoid States of Exception
Avoid Non-Places: Design Civic Anchors
Design Comfort without Isolation
Construct Local-Global Connective Spaces
Clearly Define Political Spaces of Border Control
Spatial Layouts: Seamless Circulation + Civic Squares)
Secure Yet Humane Border Spaces)

ENCOUNTER

NATURE

TYPOLOGY

COUNTRY

BORDER INFRASTRUCTURE

CITY

BUIDLING

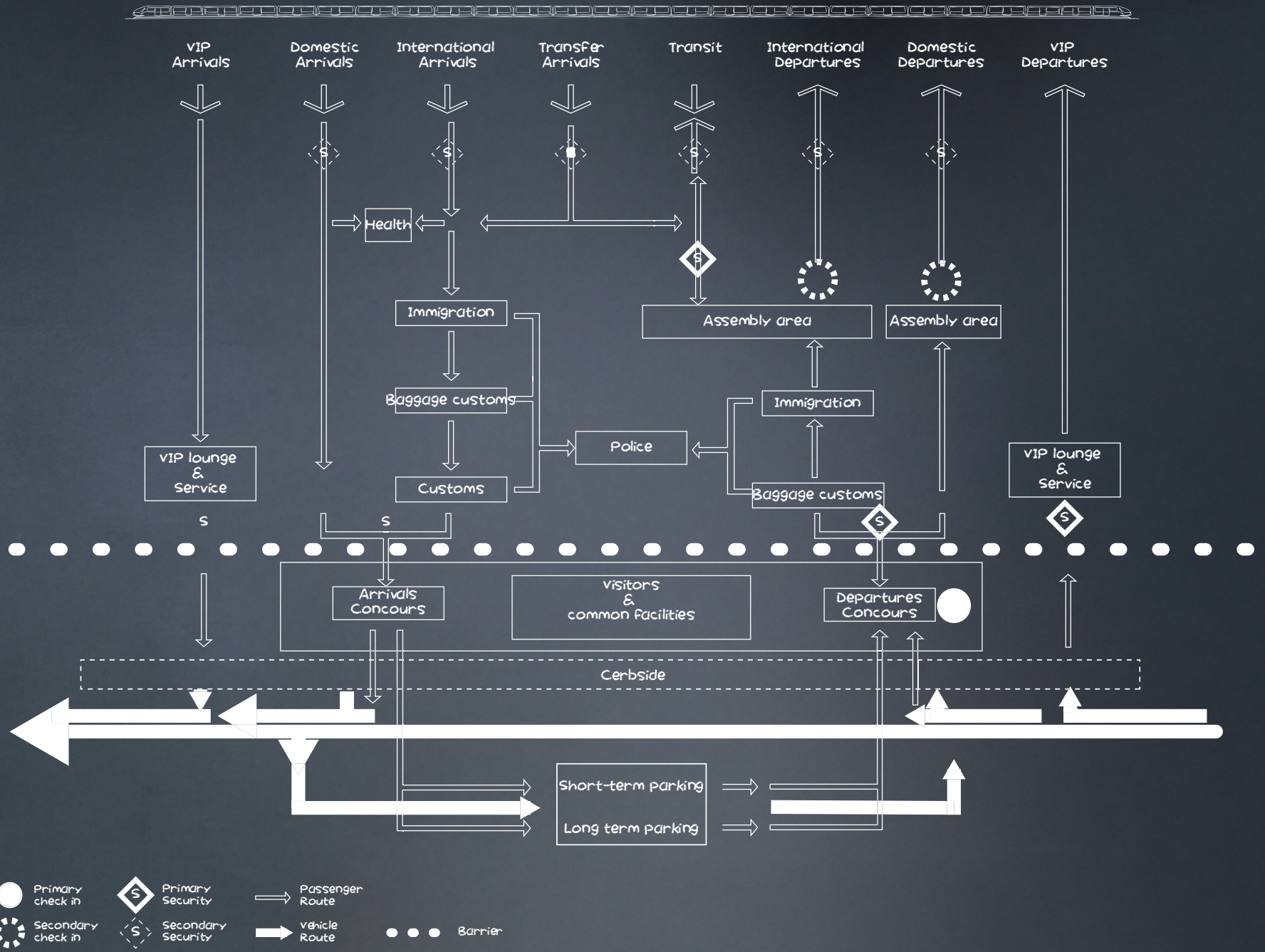


Diagram showing both passenger and vehicular flow patterns for a international plus domestic trainstation based on Metric handbook, Adler (1999) & Dijstelbloem (2021)

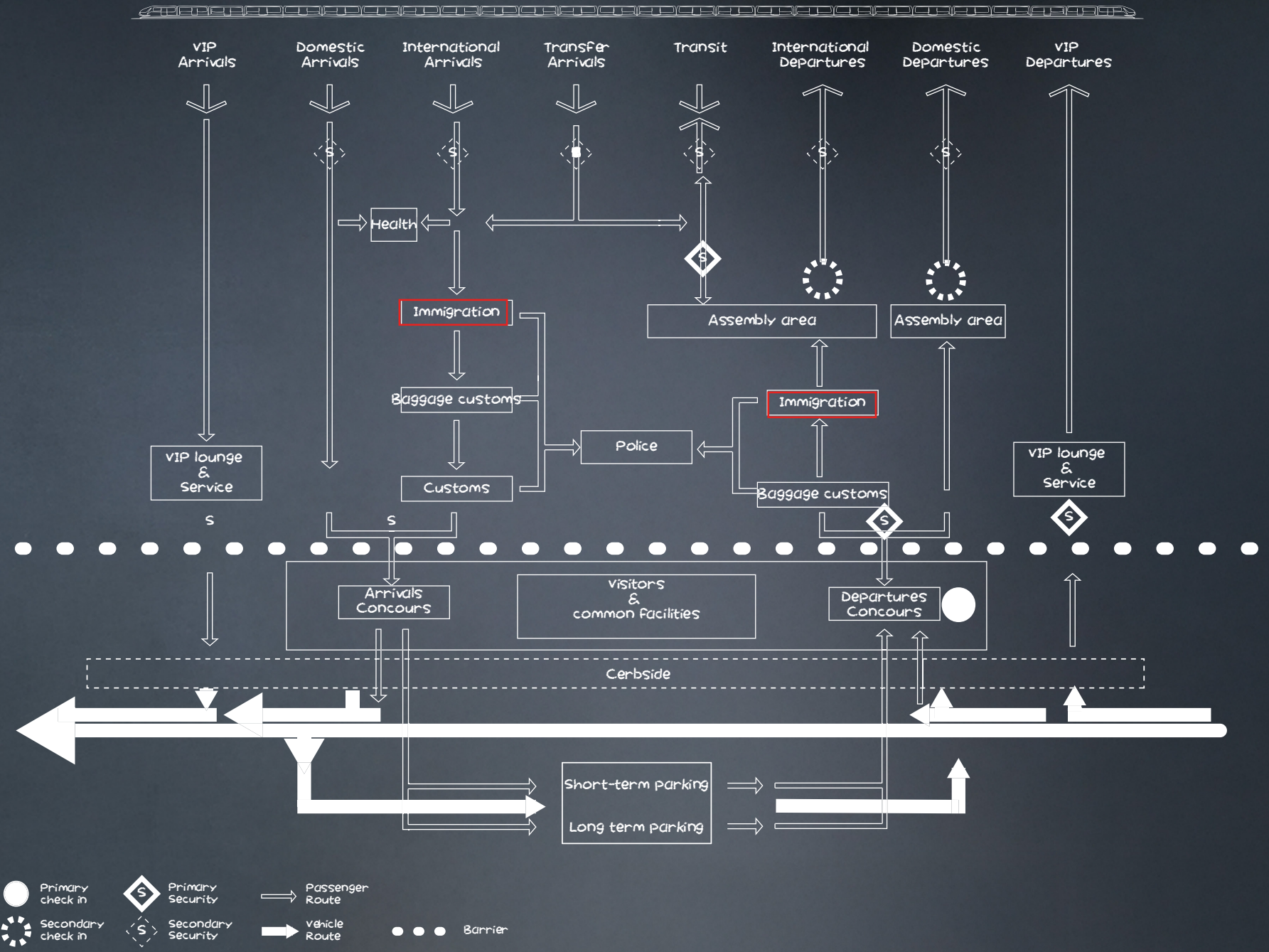


Diagram showing both passenger and vehicular flow patterns for a international plus domestic trainstation based on Metric handbook, Adler (1999) & Dijstelbloem (2021)

DESIGN

LINES

PURPLE: RAILWAY

BLUE: WATERWAY

ORANGE: ROAD

PLOTS

YELLOW: TOURISM DEVELOPMENT

RED: INTERNATIONAL ZONE

PURPLE : INTERVENTION



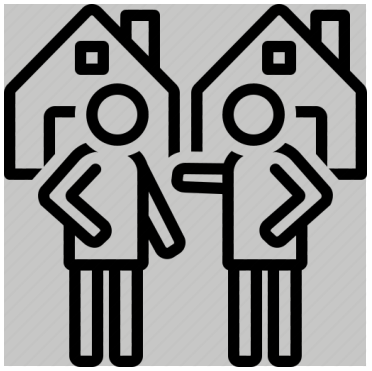
THE DESIGN

USERS

provide each slide with a slide title.
keep title in same position



TRAVELERS



NEIGHBOURHOOD

example 01 full size illustration



WORKERS



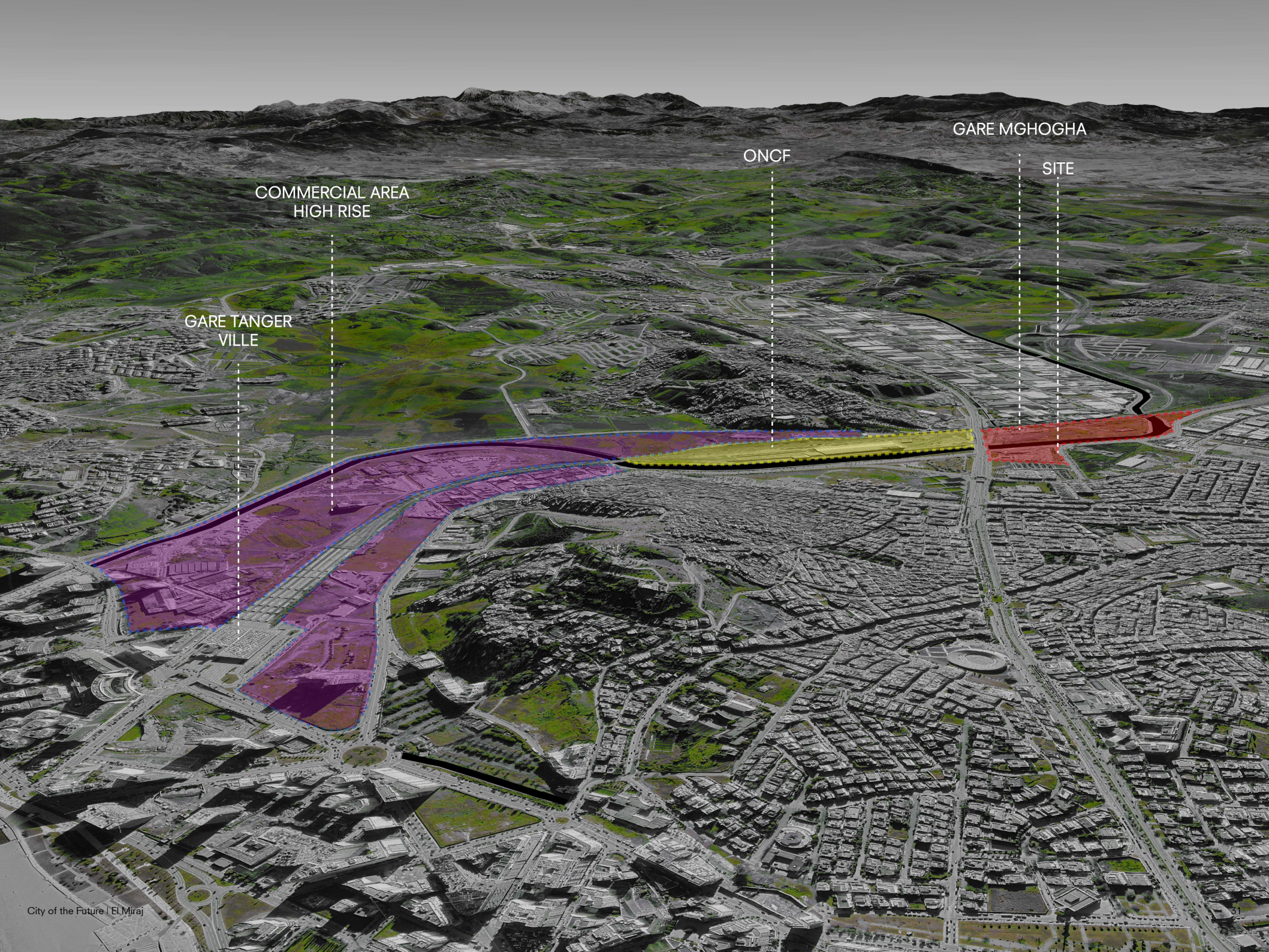
NATURE

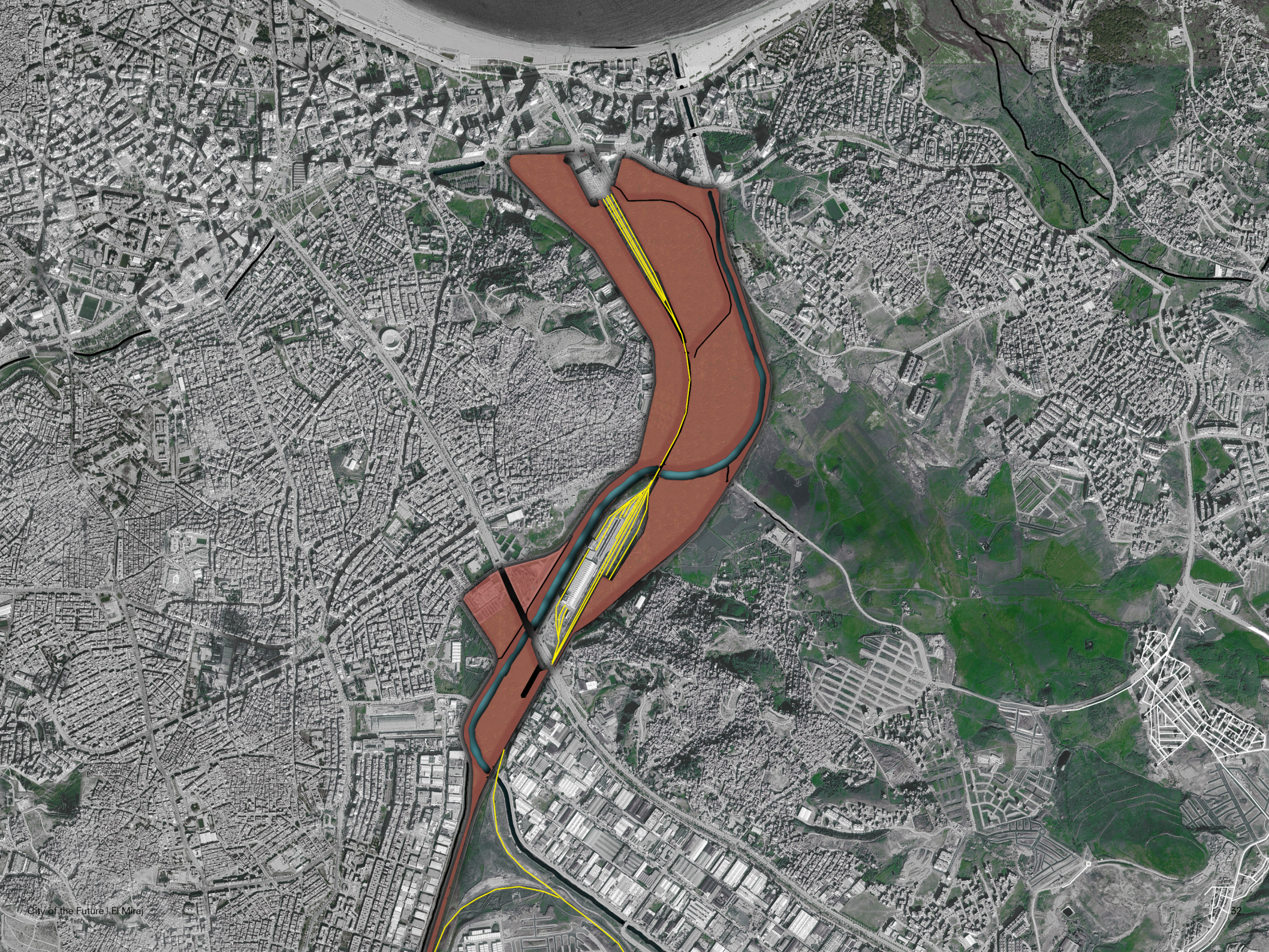
High density
Neighborhoods



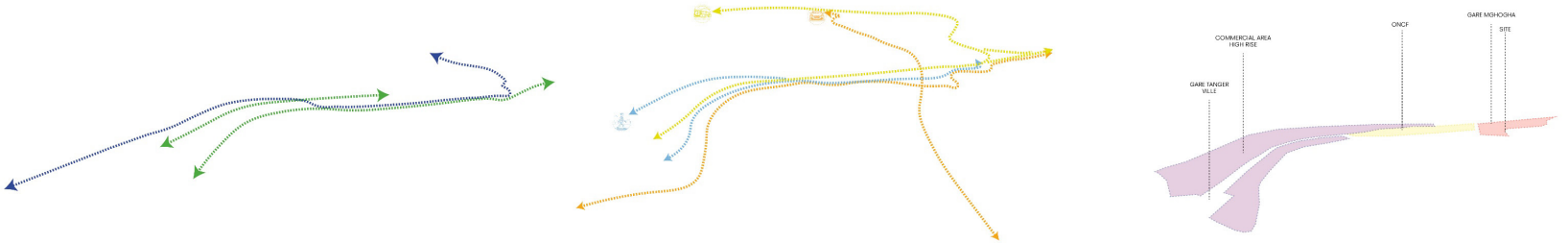
Greenspace

Inclusive Public
space


GARE MGHOGHA
ONCF
SITE
COMMERCIAL AREA
HIGH RISE
GARE TANGER
VILLE

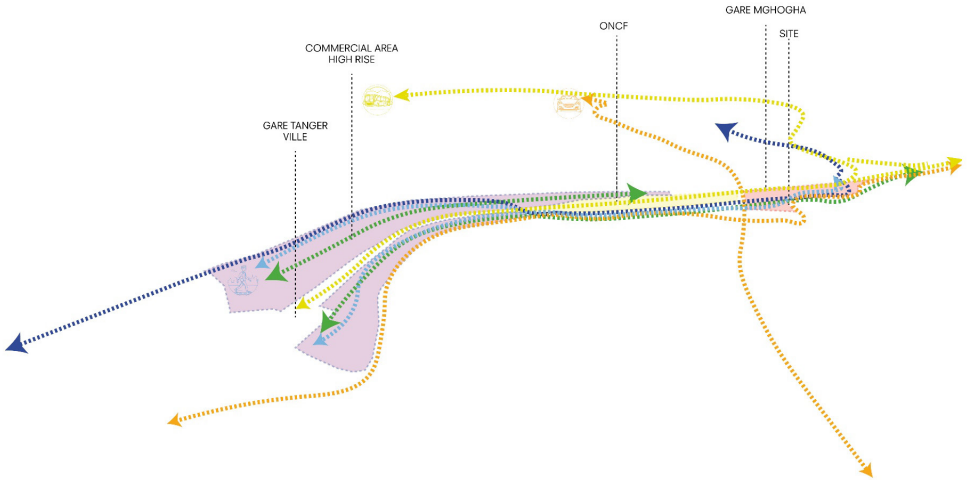


BLUE + GREEN STRUCTURE + MOBILITY + FUNCTION



=

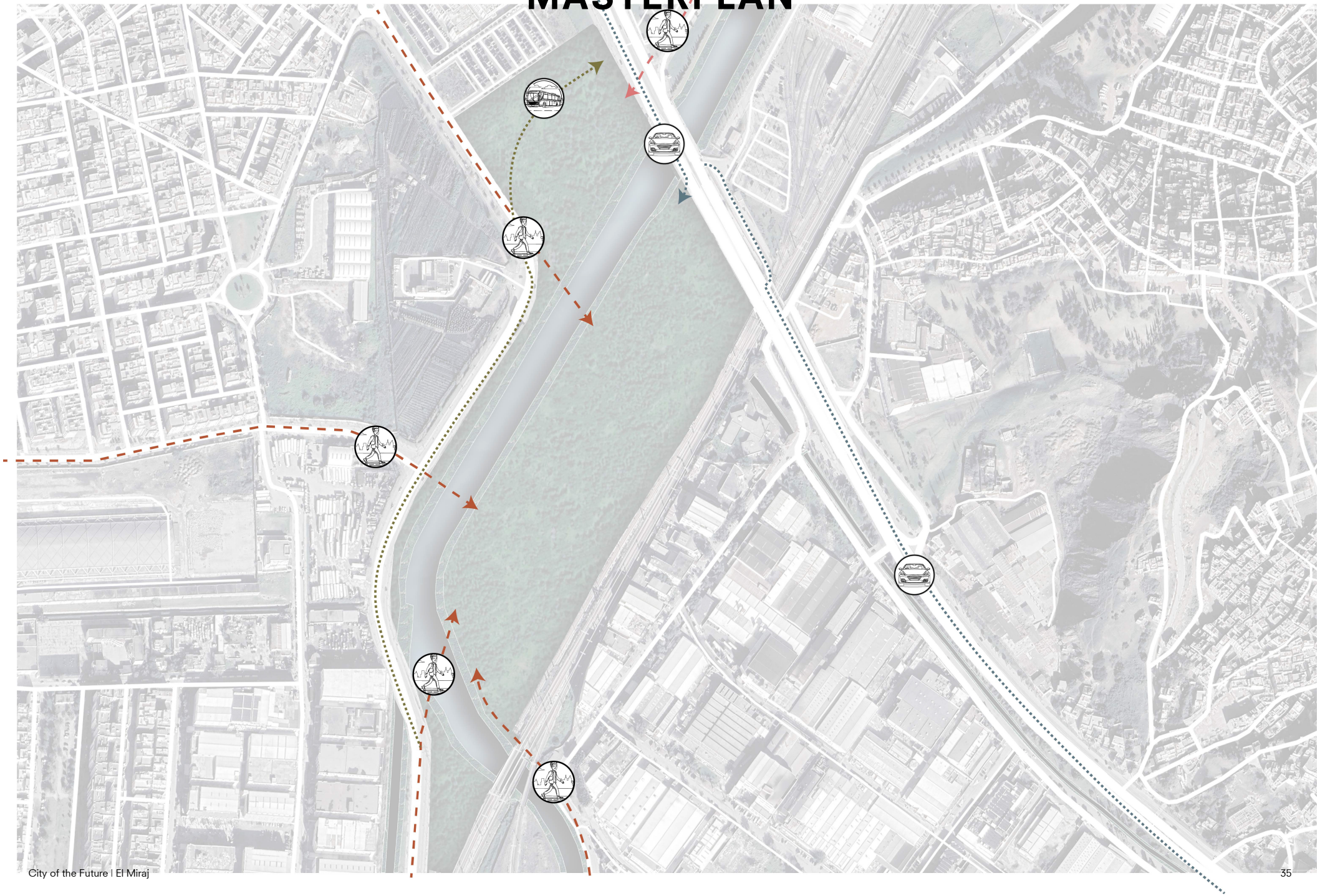
TOTAL



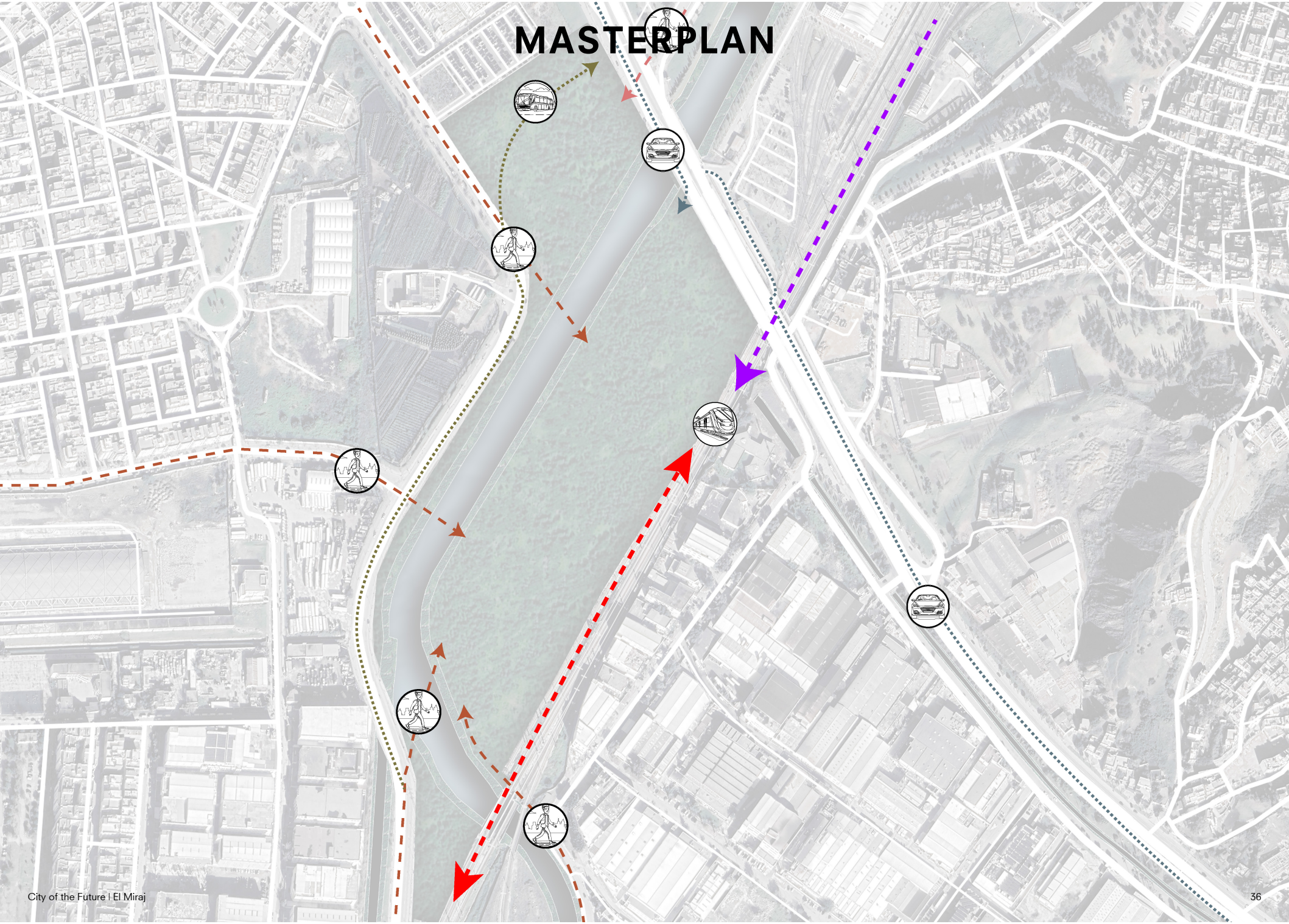
MASTERPLAN



MASTERPLAN



MASTERPLAN



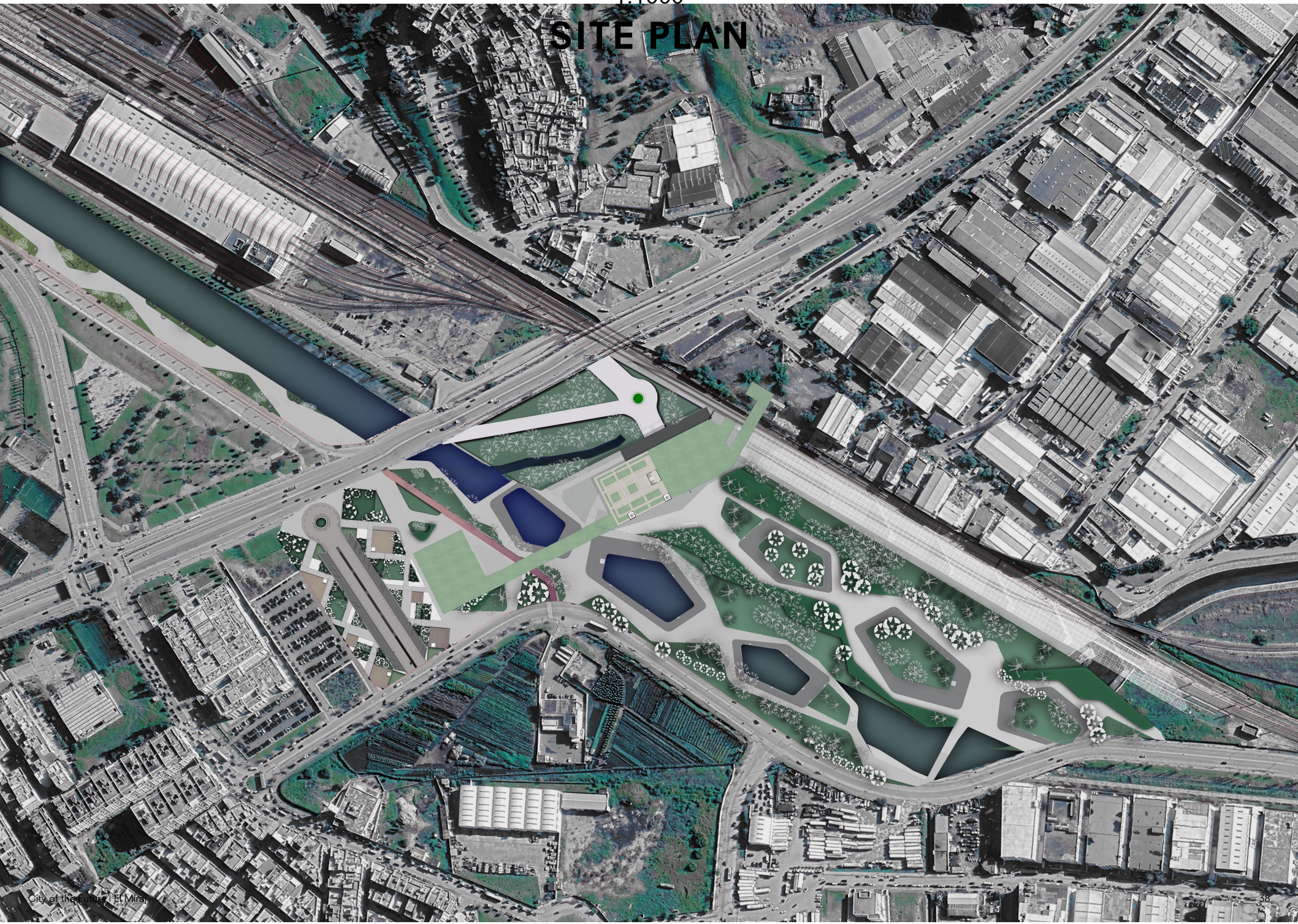
THE DESIGN

EL MIRAJ



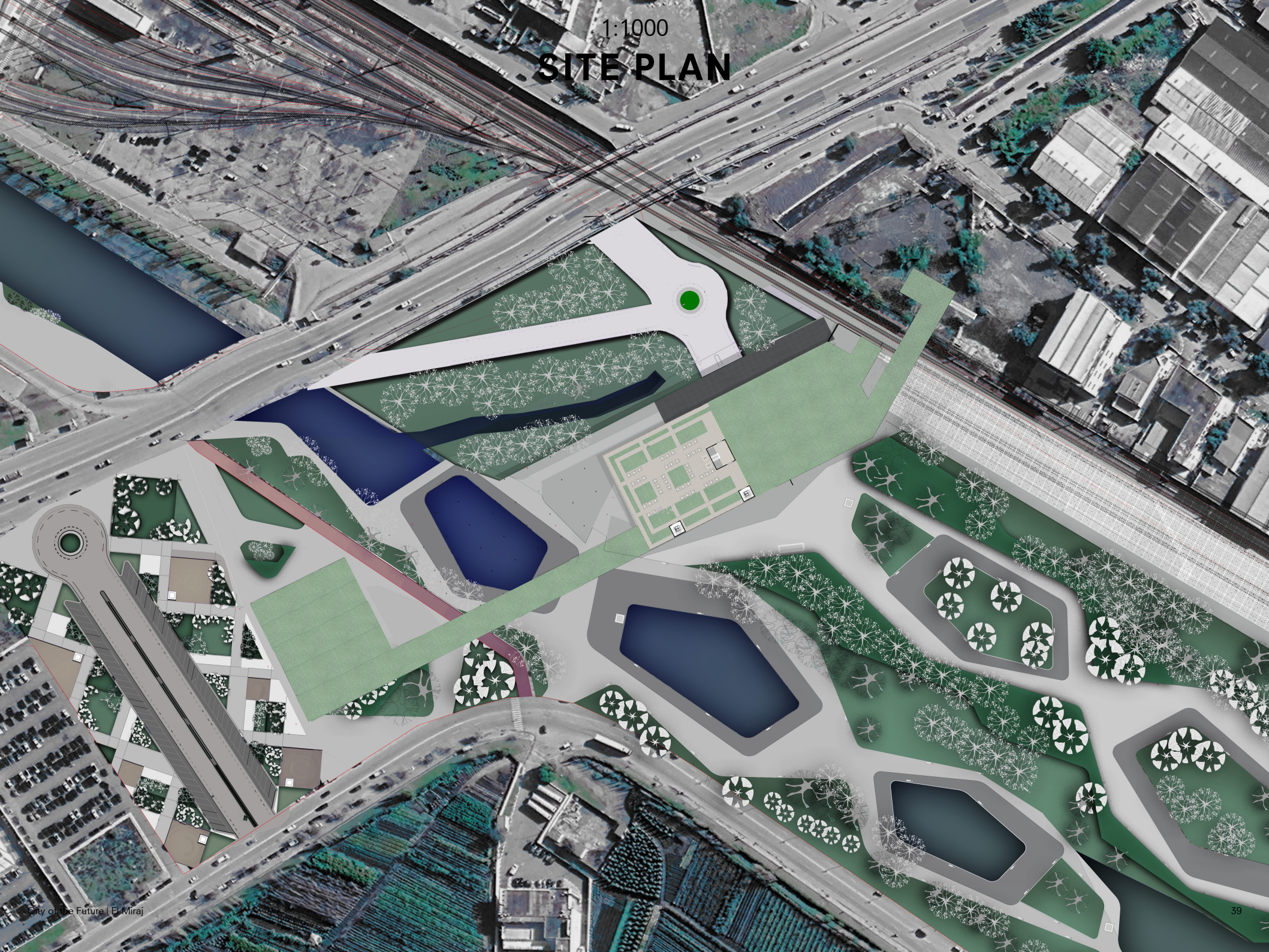
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SITE PLAN



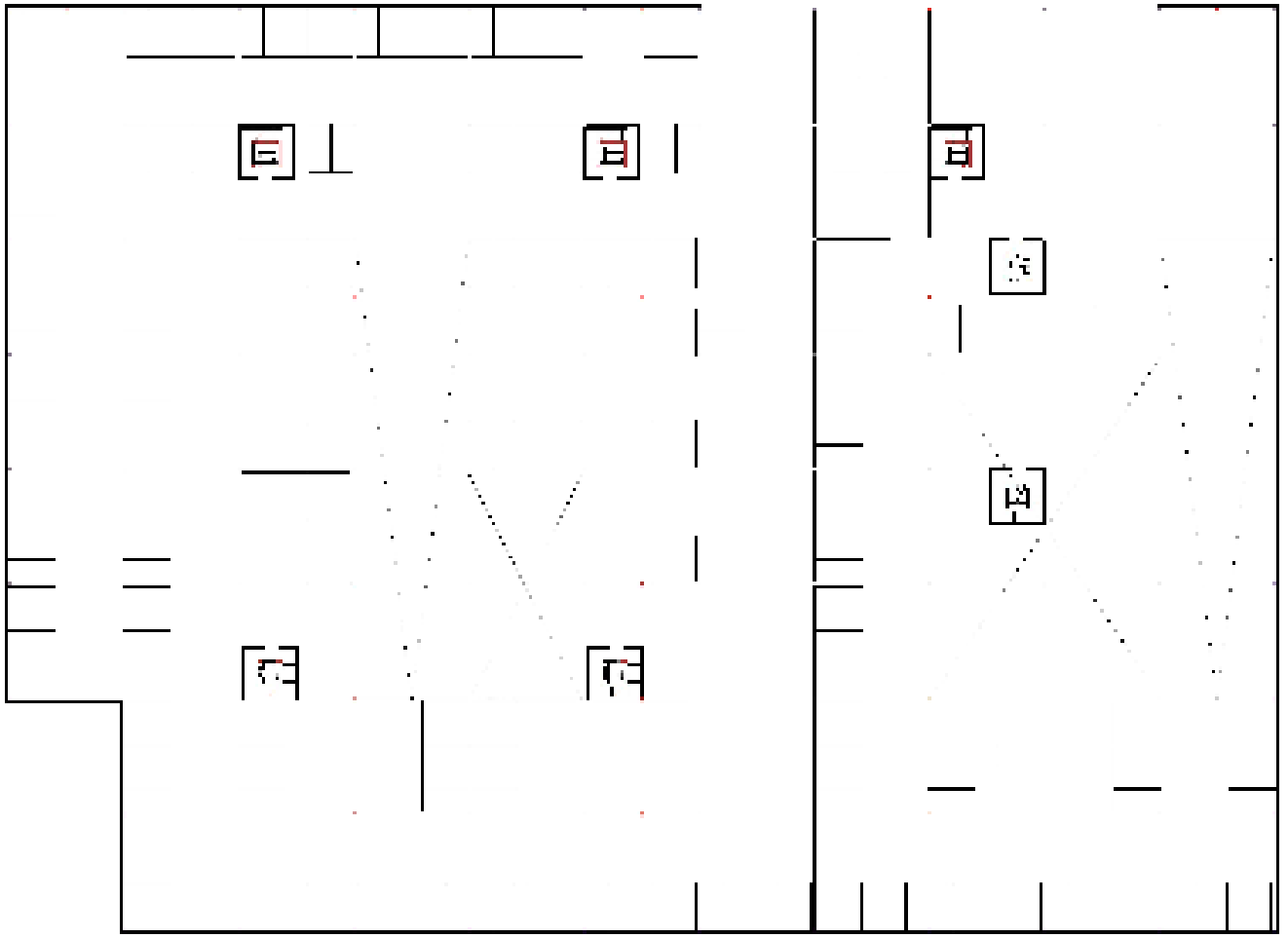
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SITE PLAN

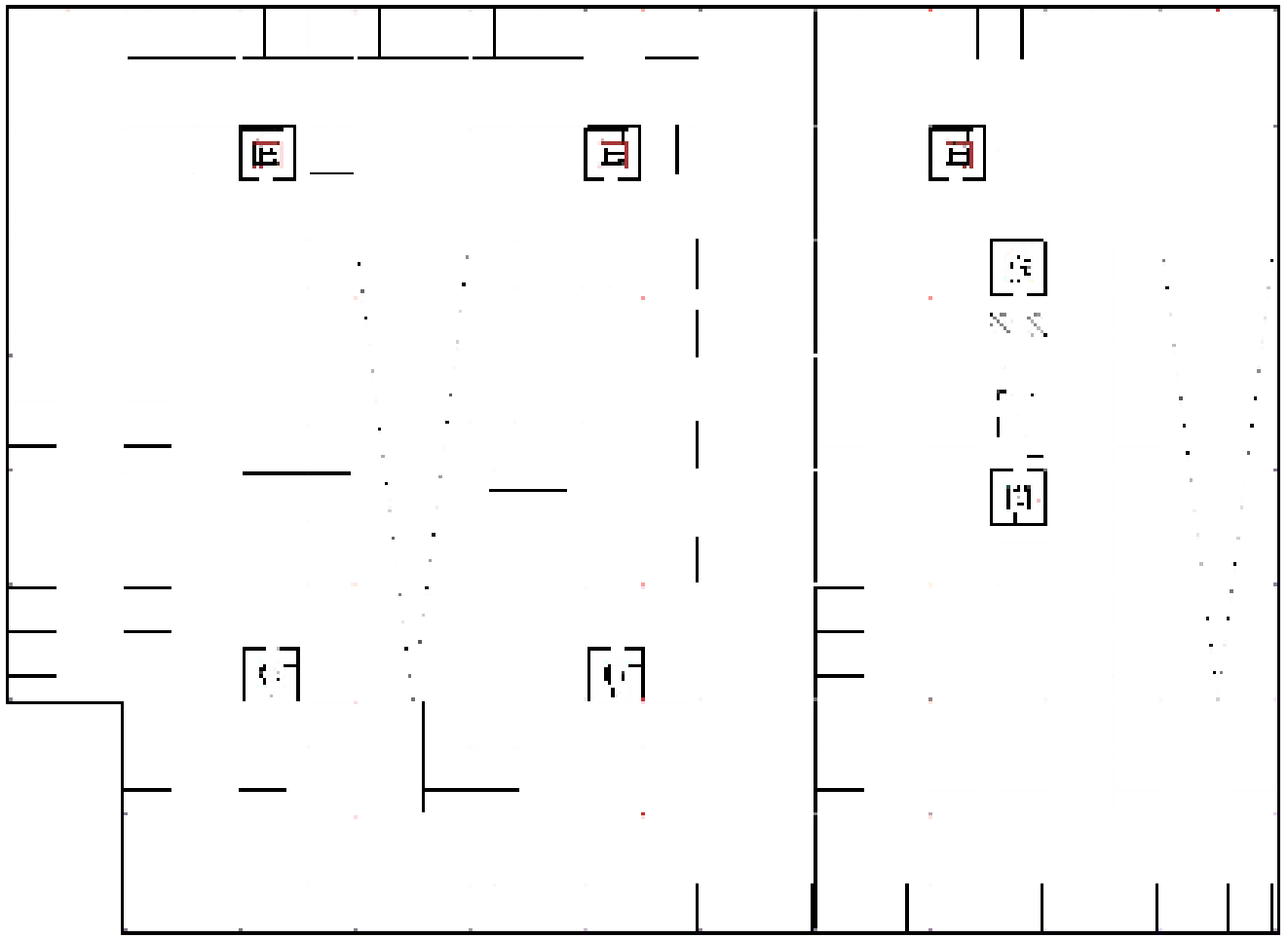


Design

PARKING GARAGE

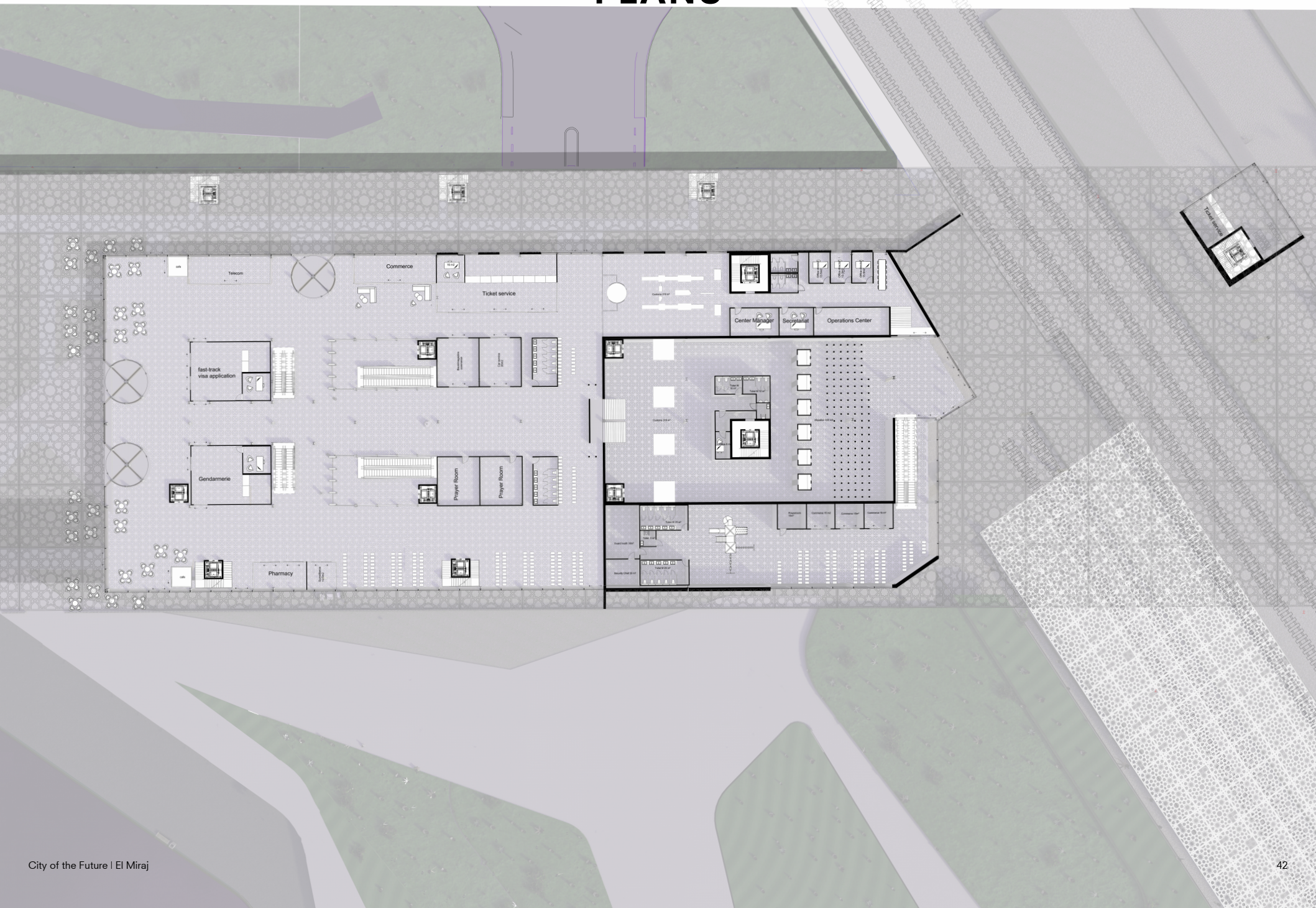


PARKING GARAGE



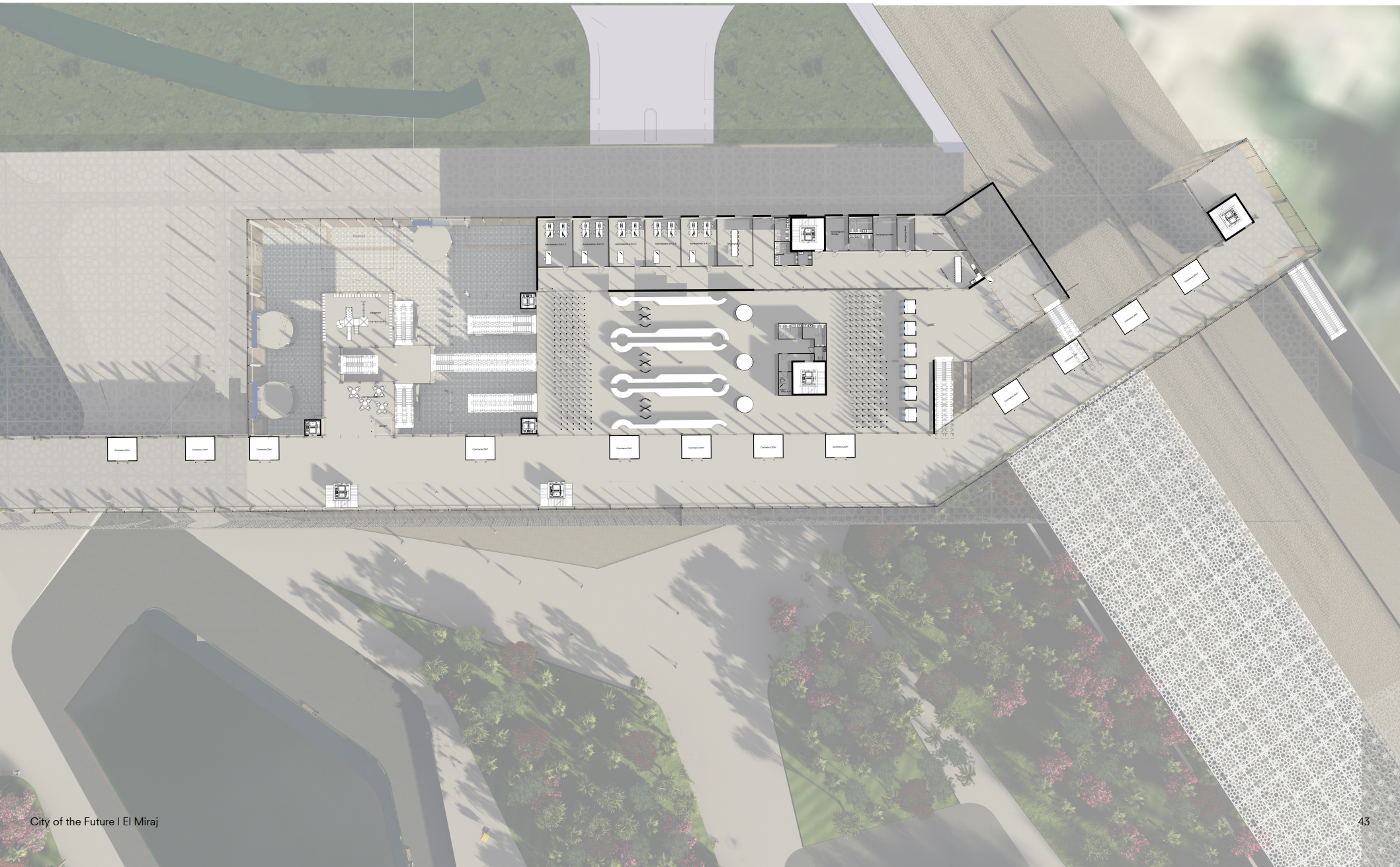
1:200

PLANS


Telecom
Commerce
Ticket service
Center Manager
Secretariat
Operations Center
fast-track visa application
Gendarmerie
Prayer Room
Prayer Room
Pharmacy
Ticket service

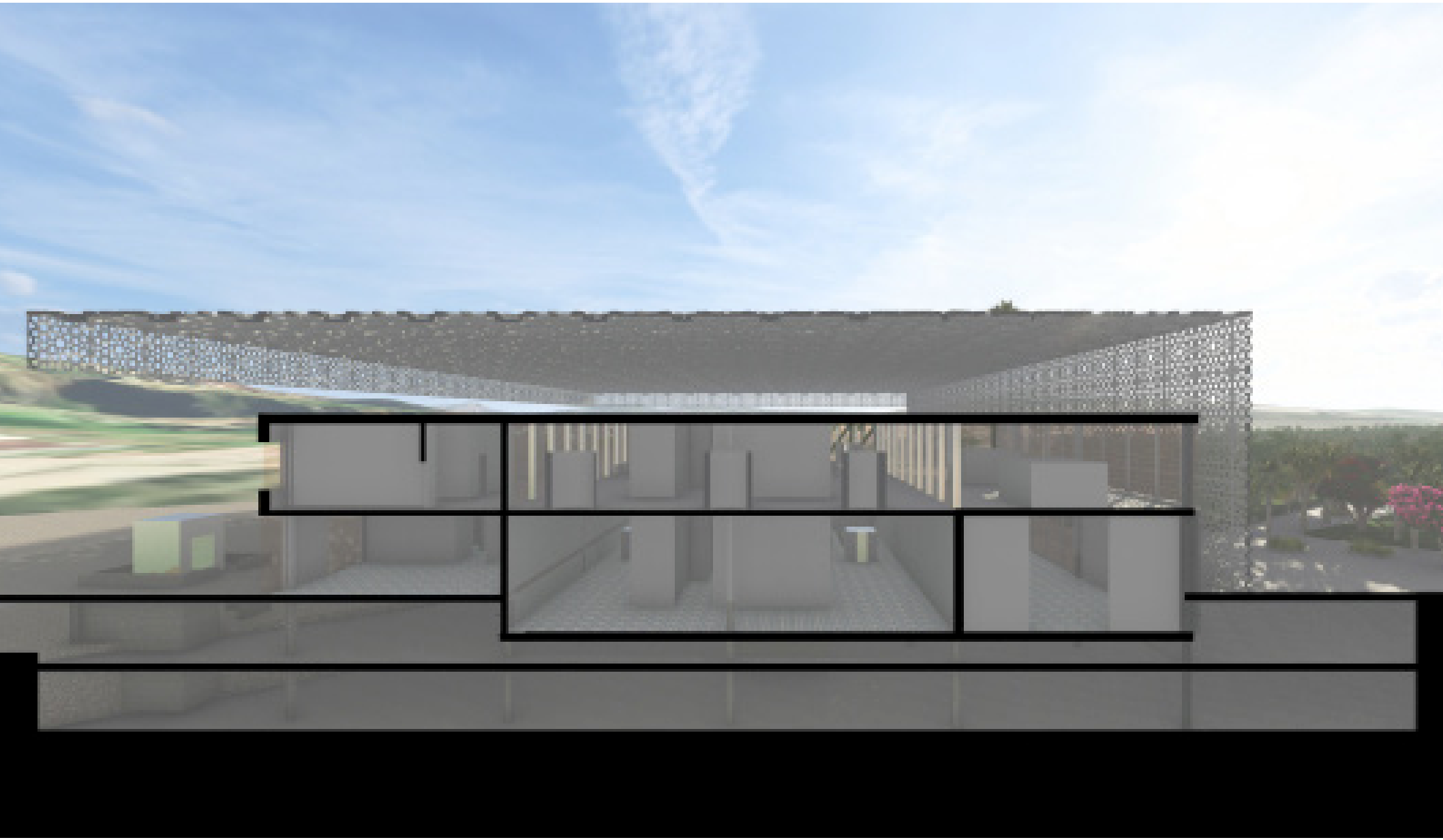
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PLANS



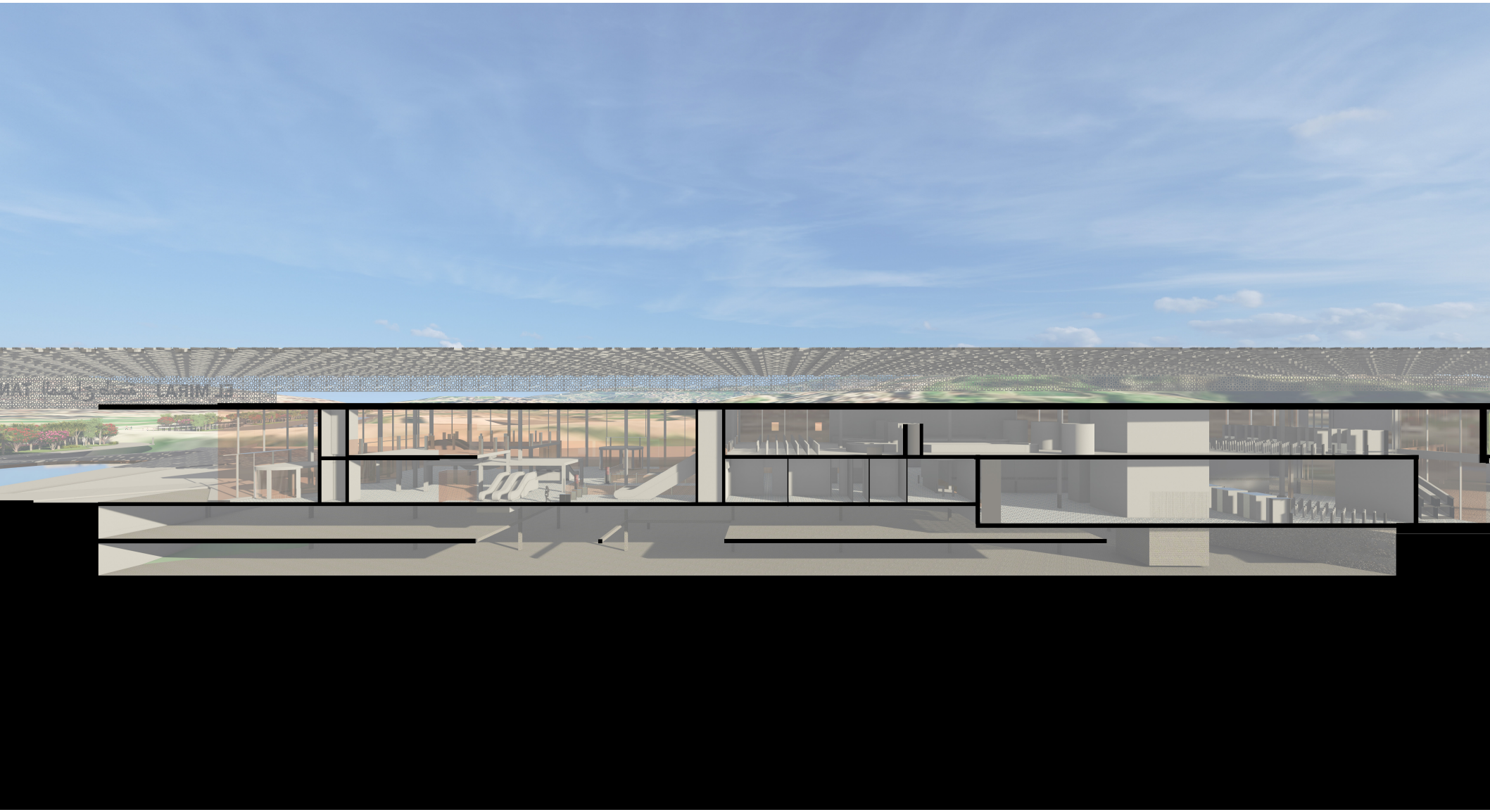
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SECTION



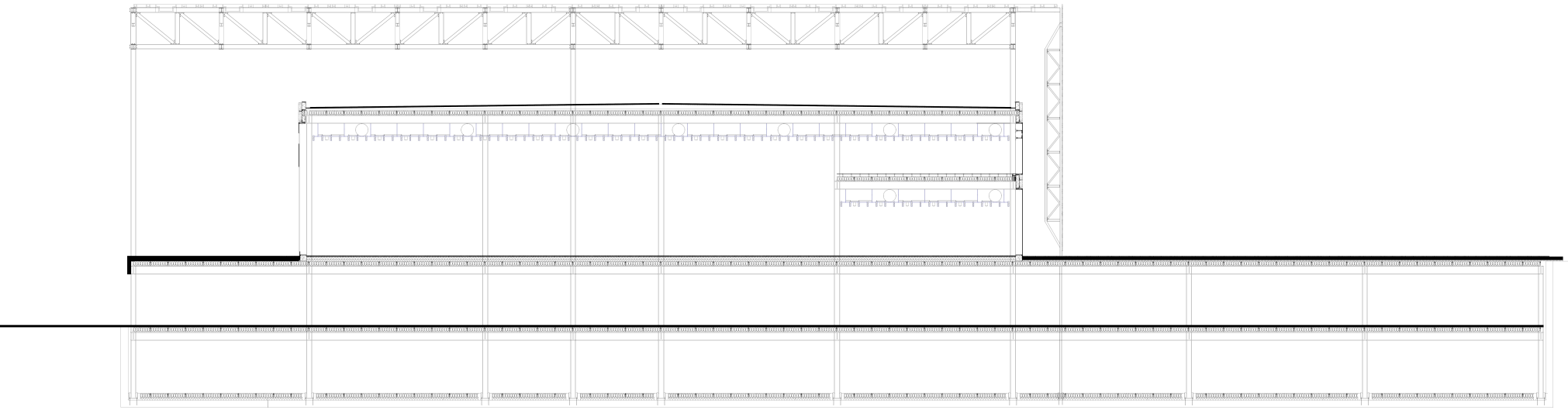
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SECTION



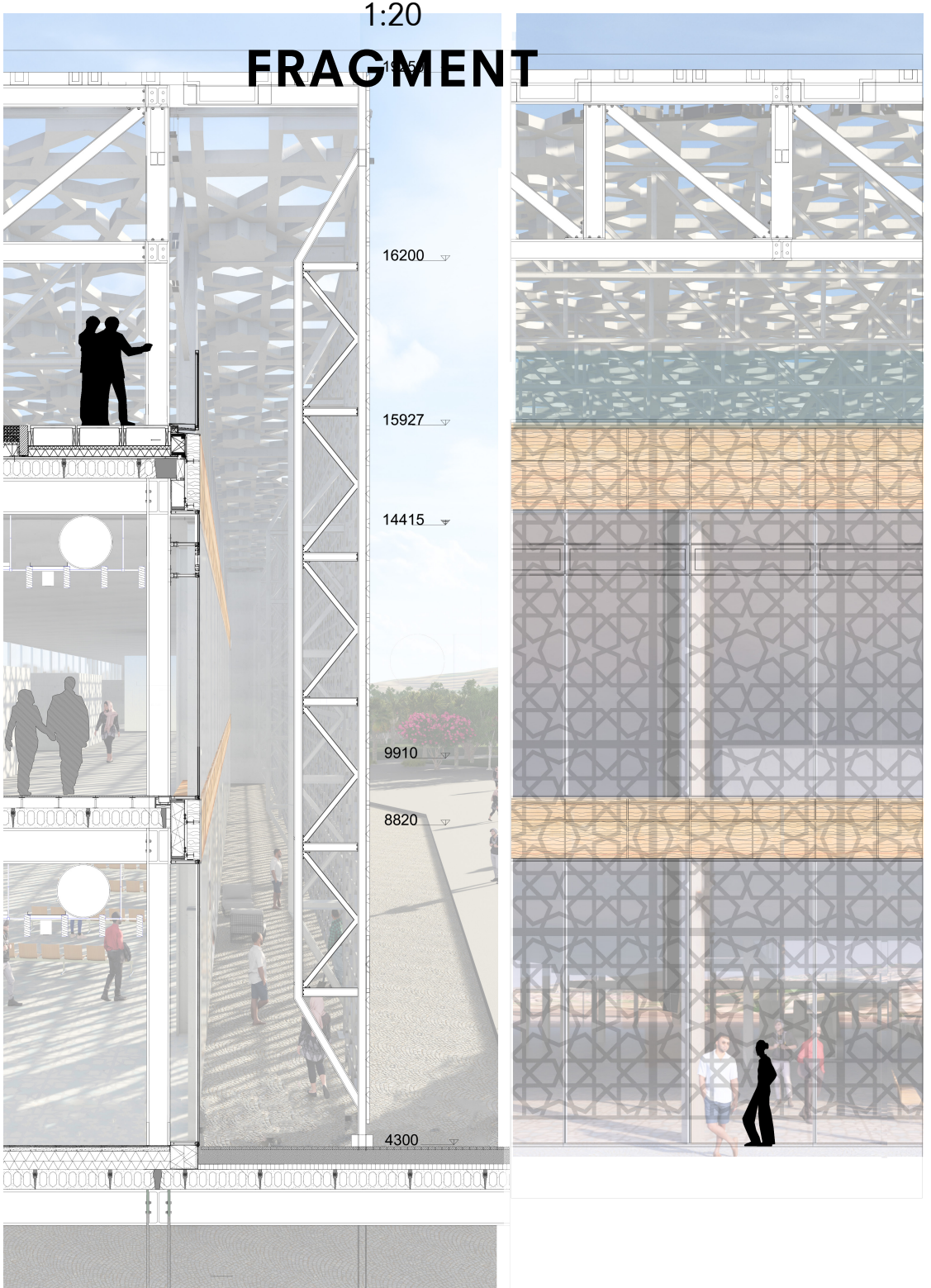
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SECTION



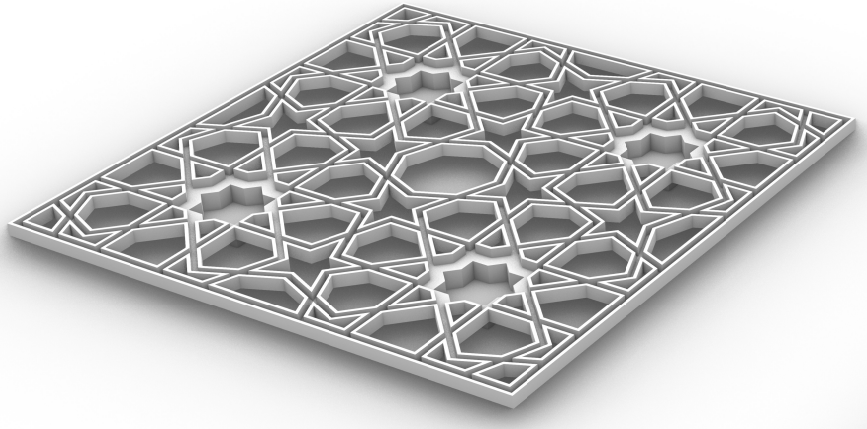
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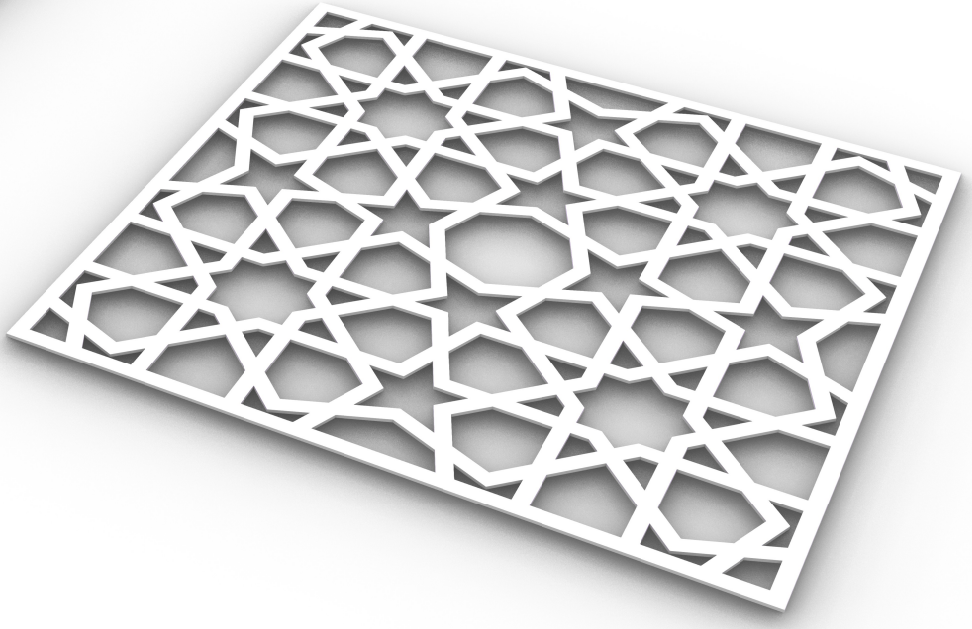
FRAGMENT



Roof and facade

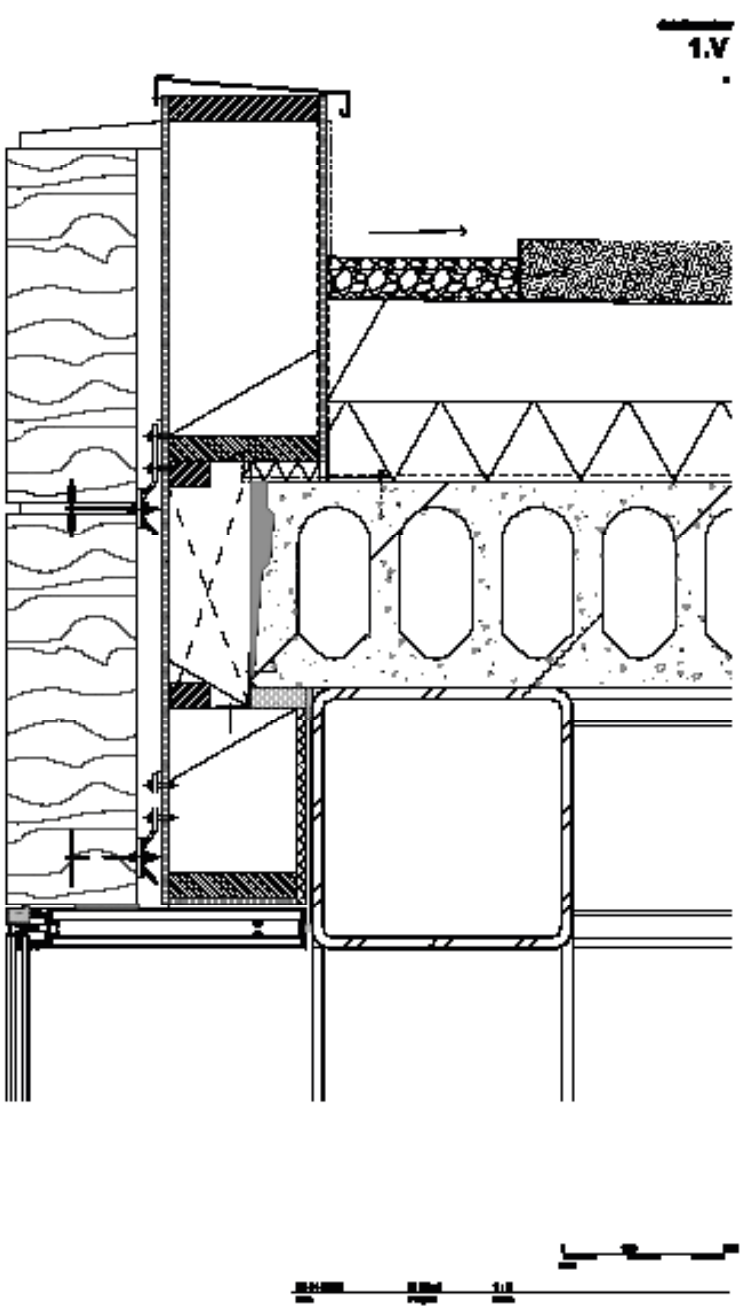
MASHRABIA

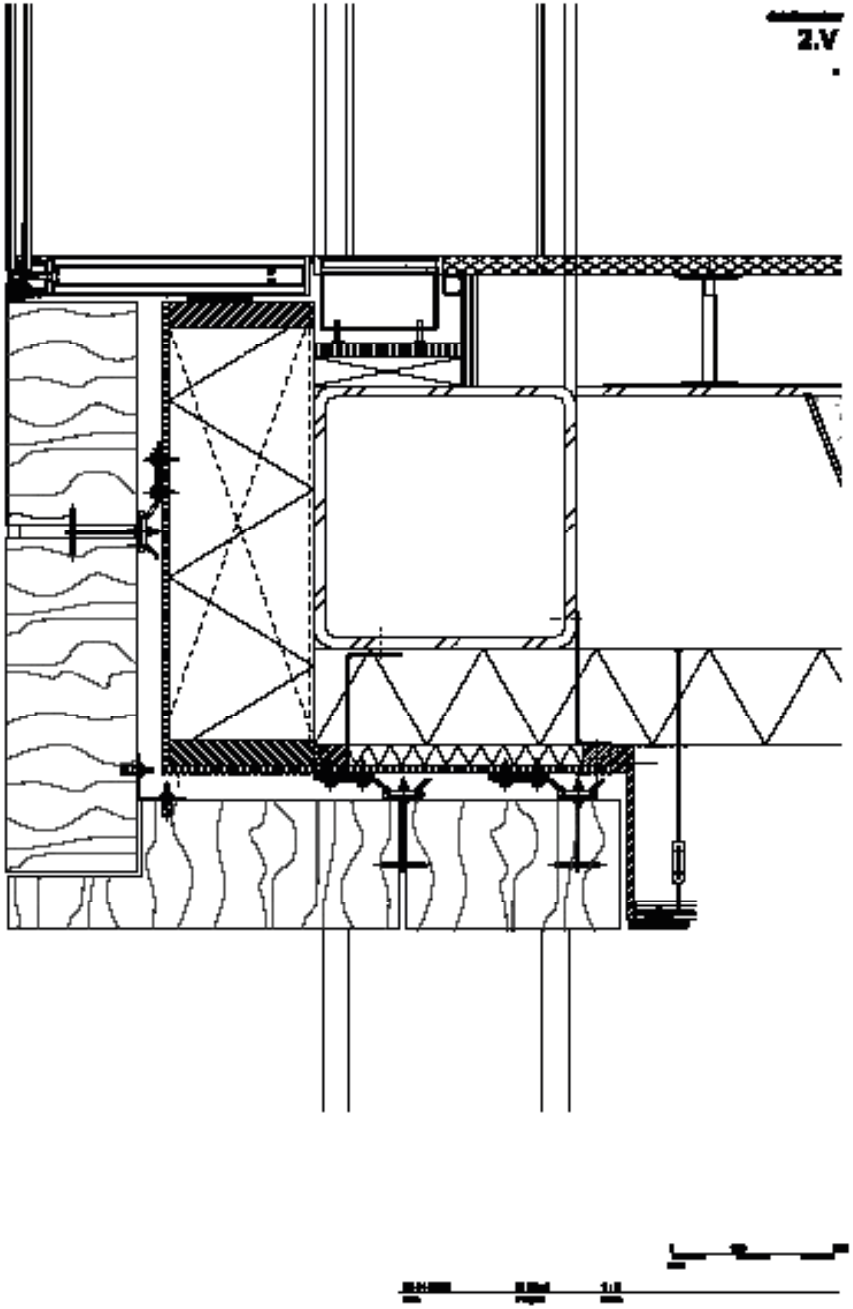




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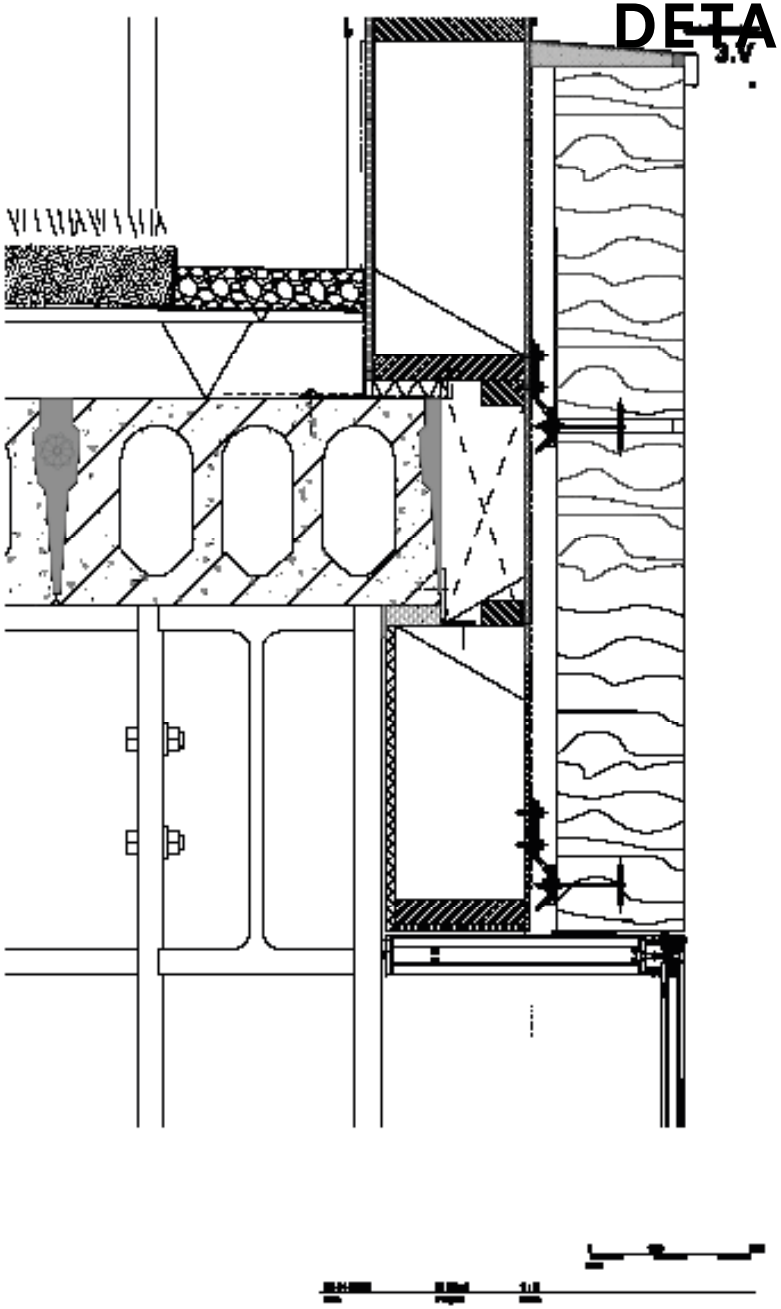
DETAILS

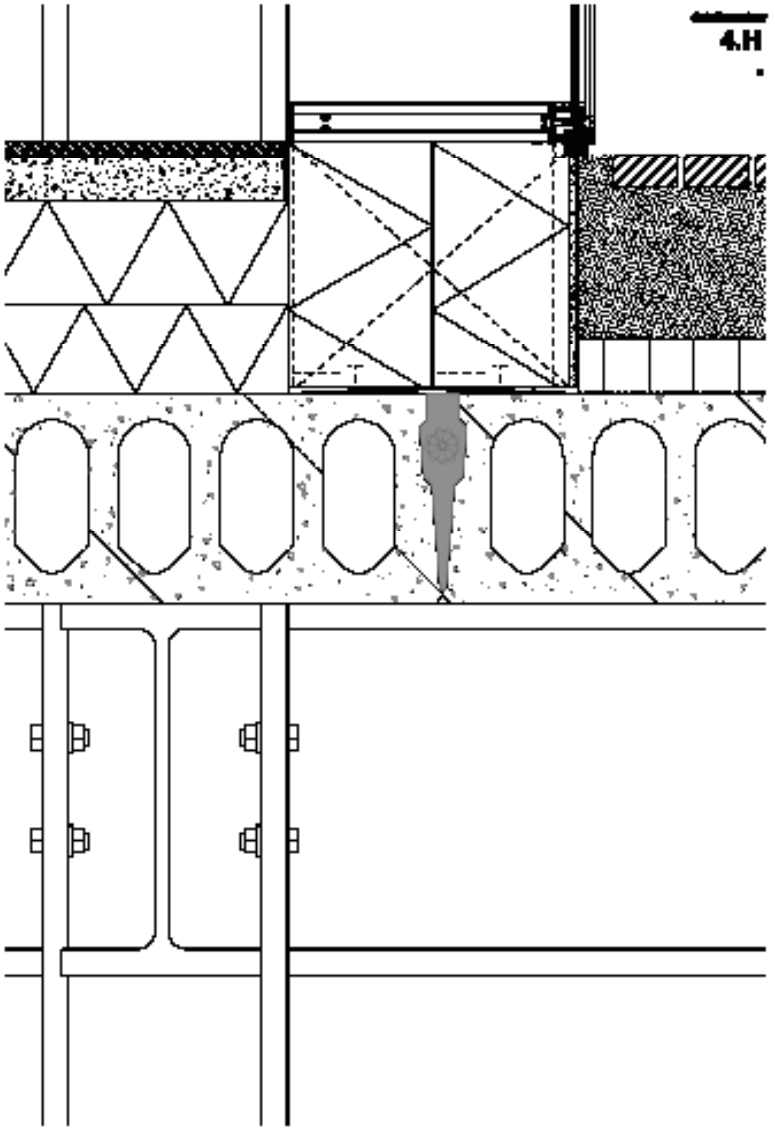




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DETAILS

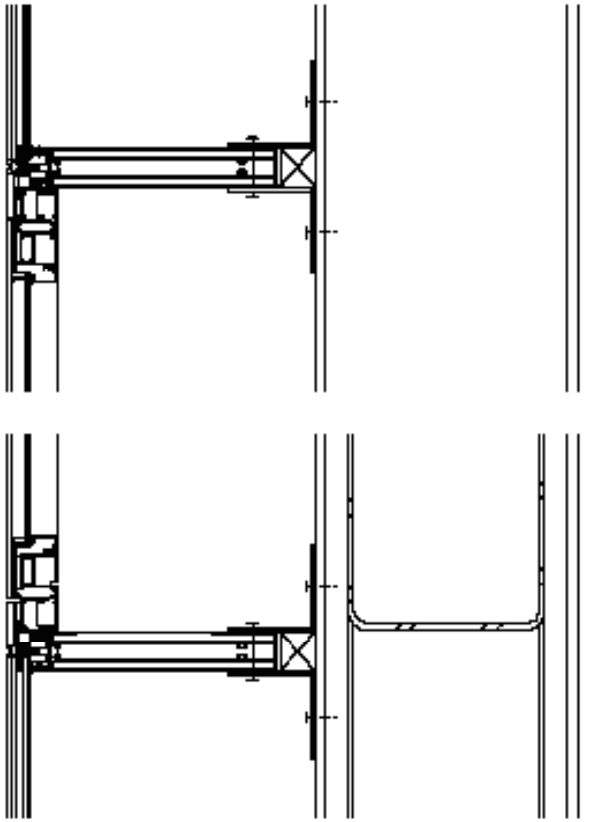




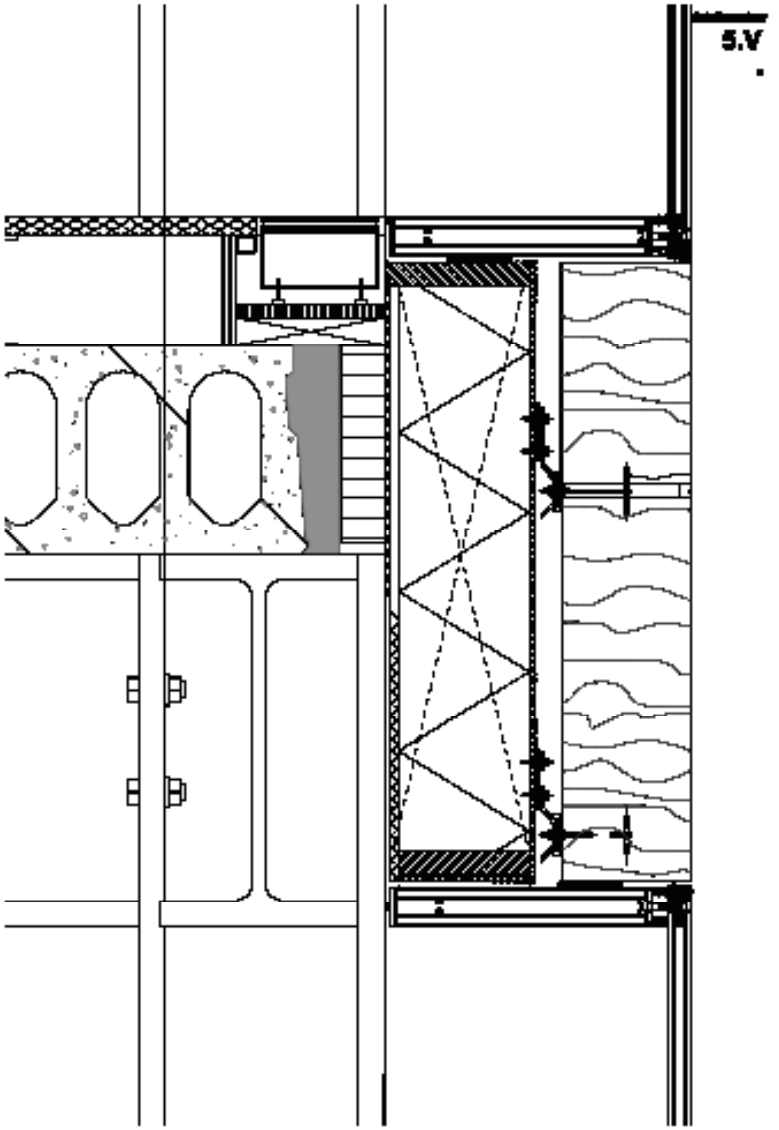
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DETAILS

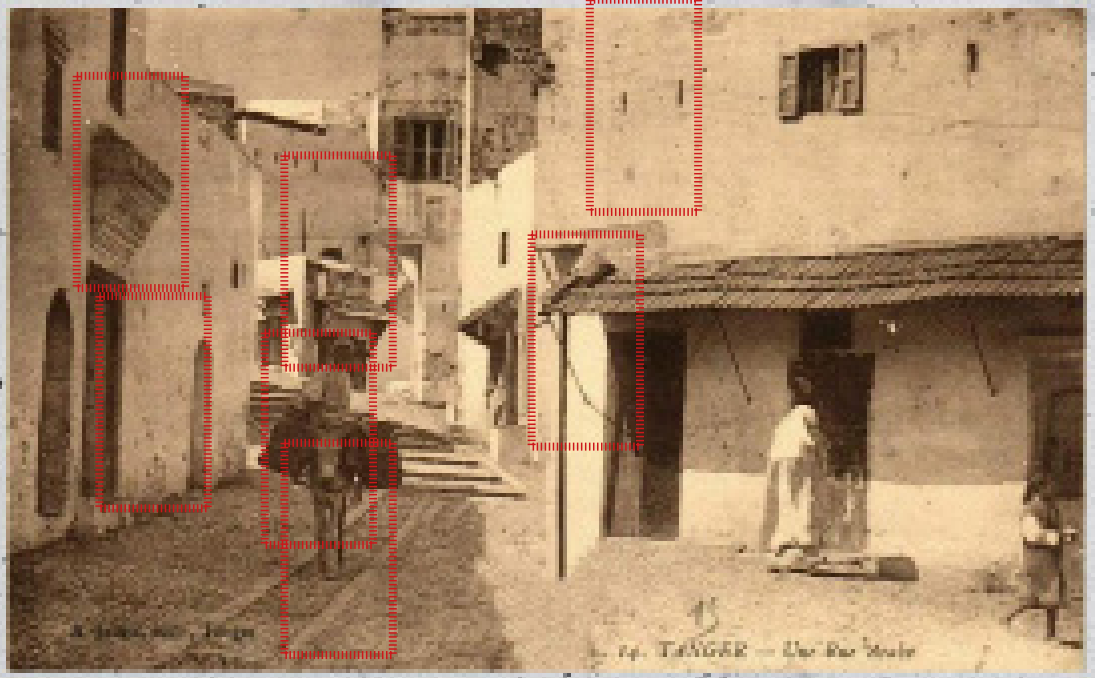
1.H



5.V

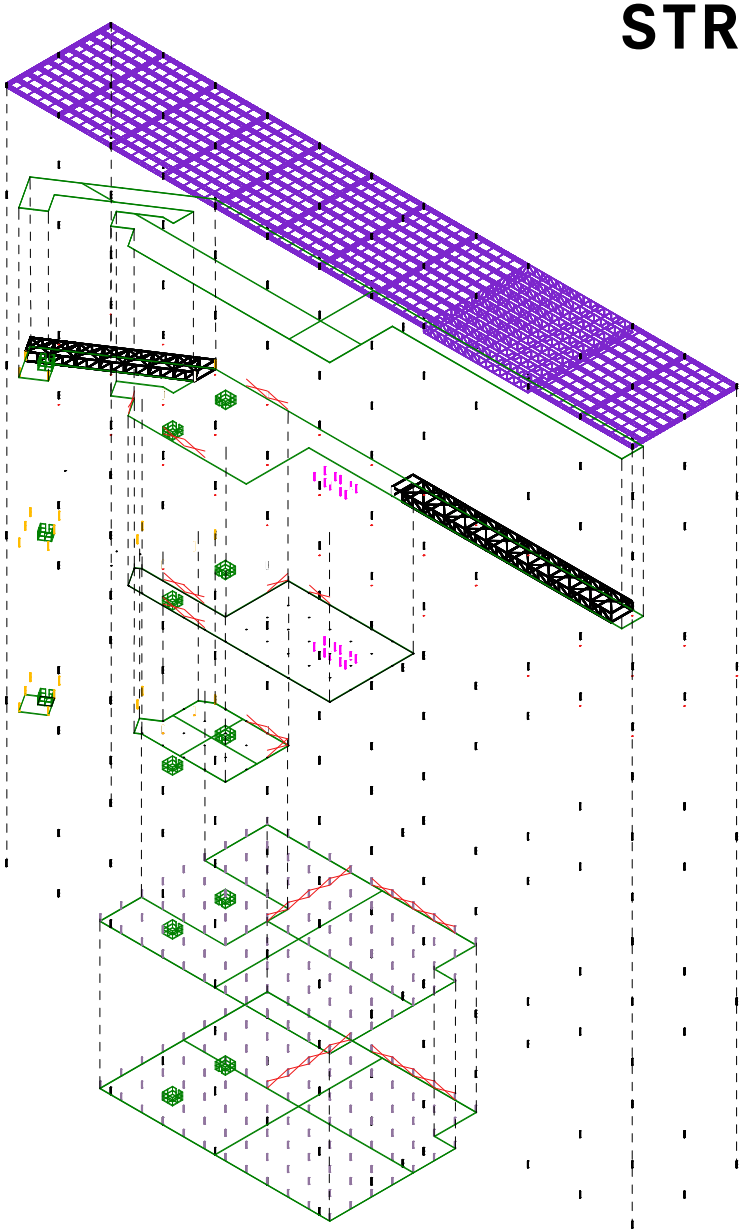


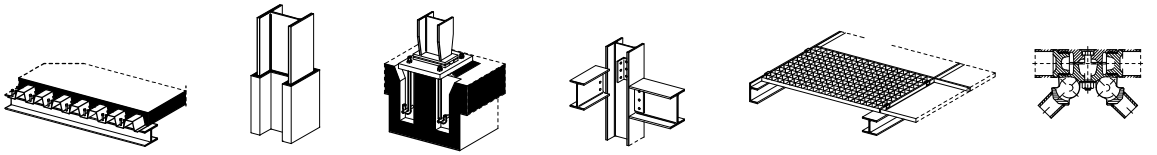
SUSTAINABILITY AND CIRCULARITY



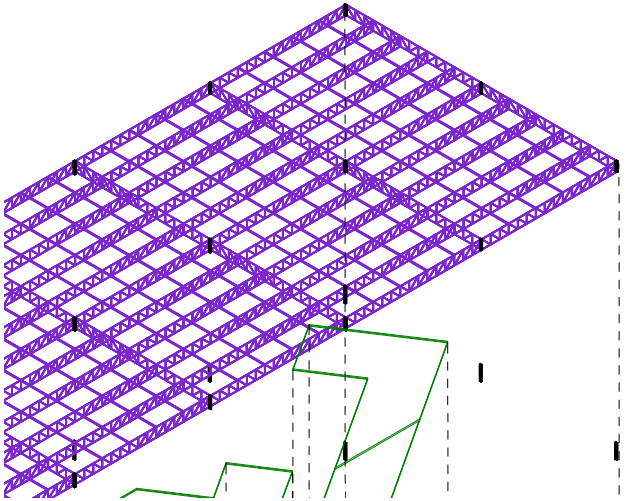
materials and dimensions

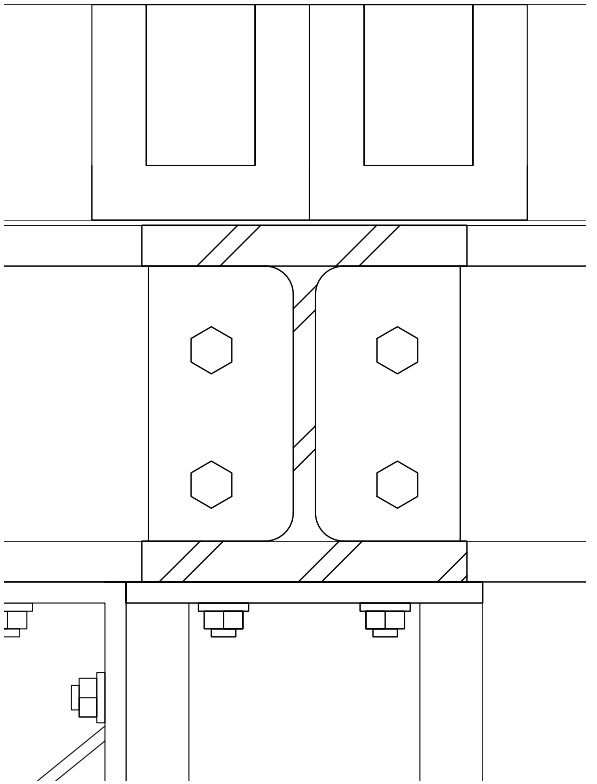
STRUCTURAL CONCEPT





Steel-Sonasid
Truss bridge : Mainstructure SHS-HF 400x400x16
diagonal roof 300x300x16
diagonal side 300x200x16
Truss paterns
Column HEM 340
Mainstructure
Diagonal side
Diagonal roof wire
Hollow-core slab floor 320mm
Prefabricated Rammed Earth 200mm
Composite deck 400mm

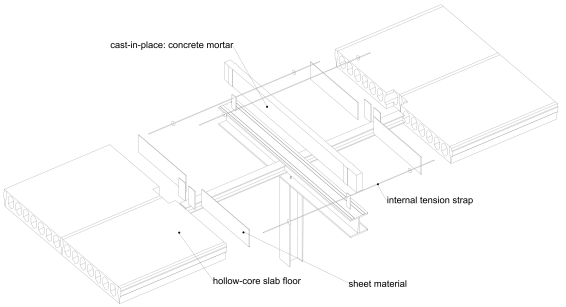




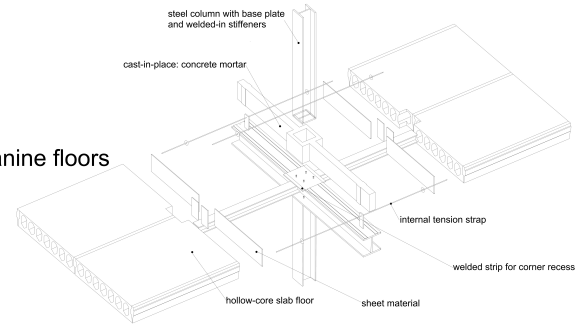
materials and dimensions

STRUCTURAL CONCEPT

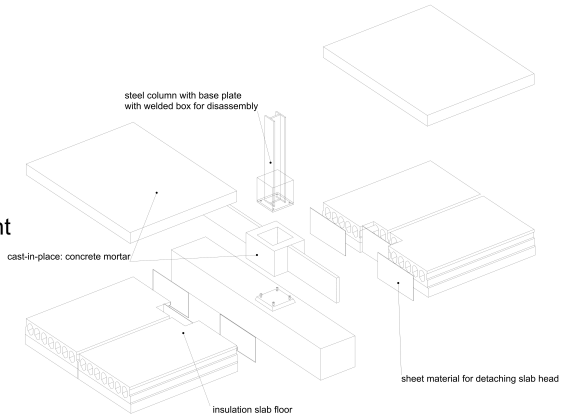
Roof



Mezzanine floors

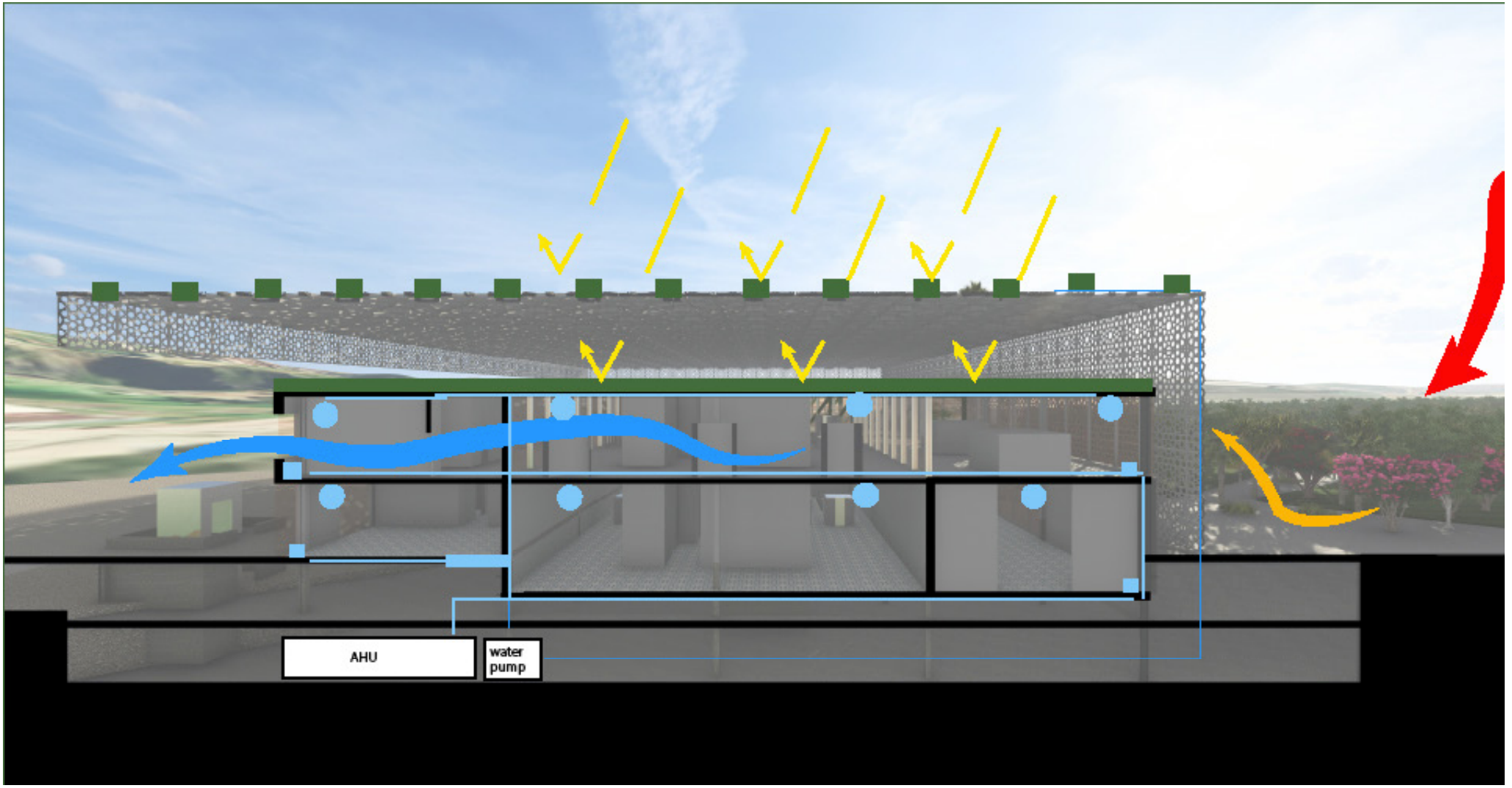


Basement



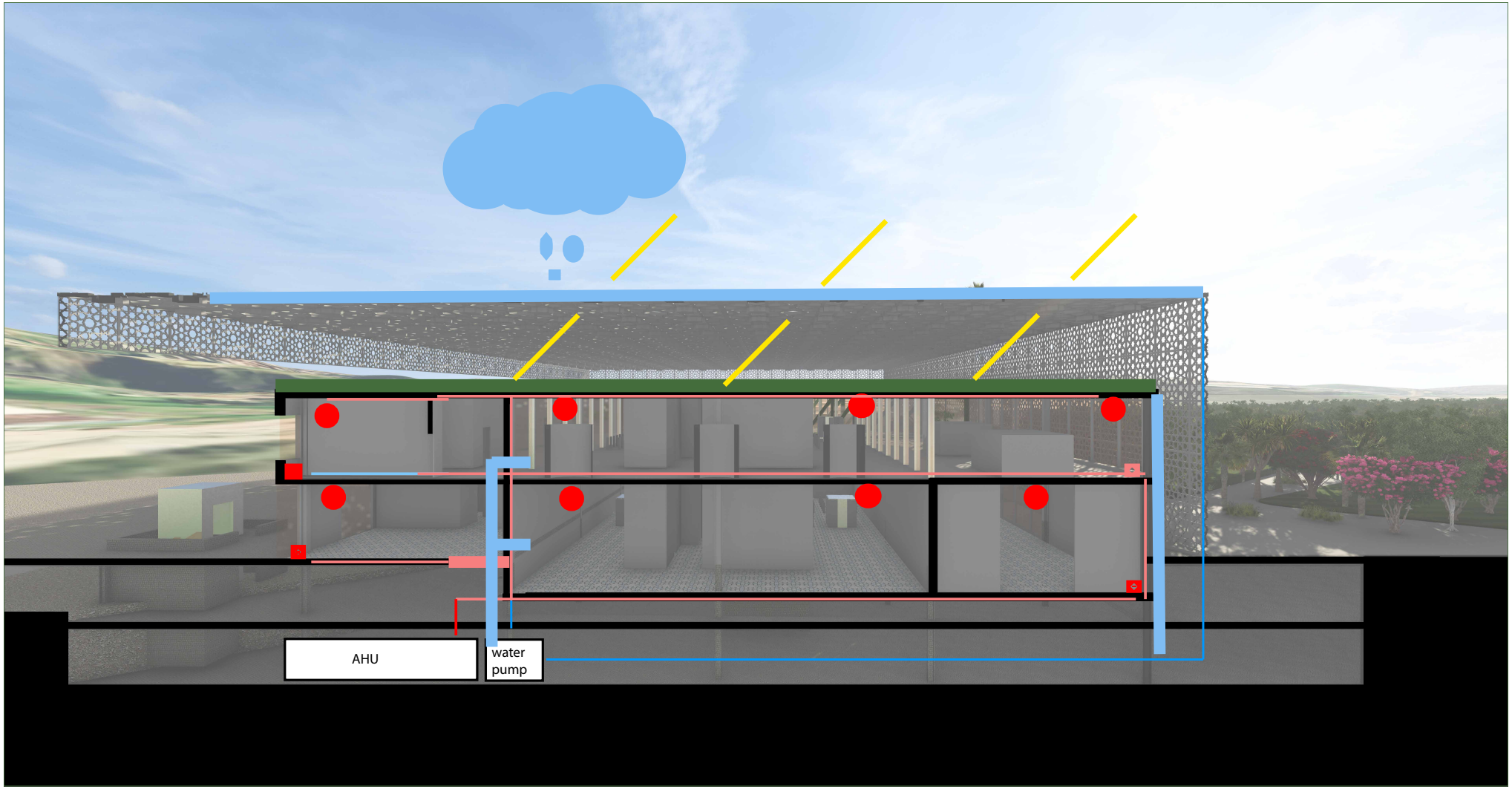
SUMMER

CLIMATE CONCEPT



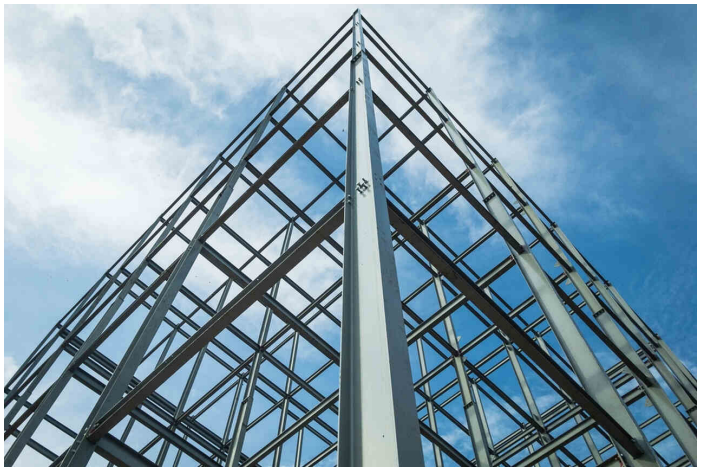
WINTER

CLIMATE CONCEPT

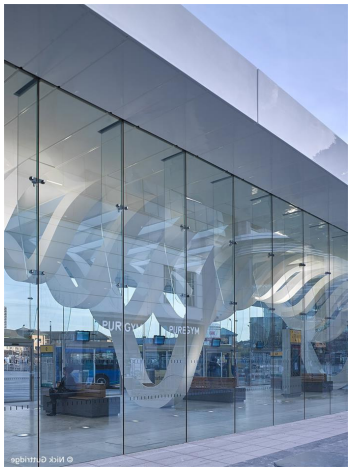


Design

MATERIALS







TREE'S & SHRUBS



Quercus suber



Schinus molle



Tipuana tipu



MALVAVISCUS ARBOREUS



LIGUSTRUM OVALIFOLIUM



Citrus aurantium



Callistemon lanceolatum



HIBISCUS ROSA SINENSIS



POLYGALA DALMAISIANA



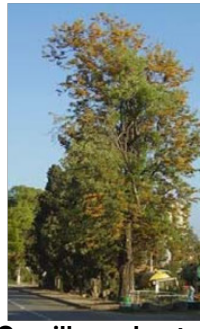
ROSIER SP.



Yucca elephantipes



Tecoma stans



Grevillea robusta



LATANA CAMARA

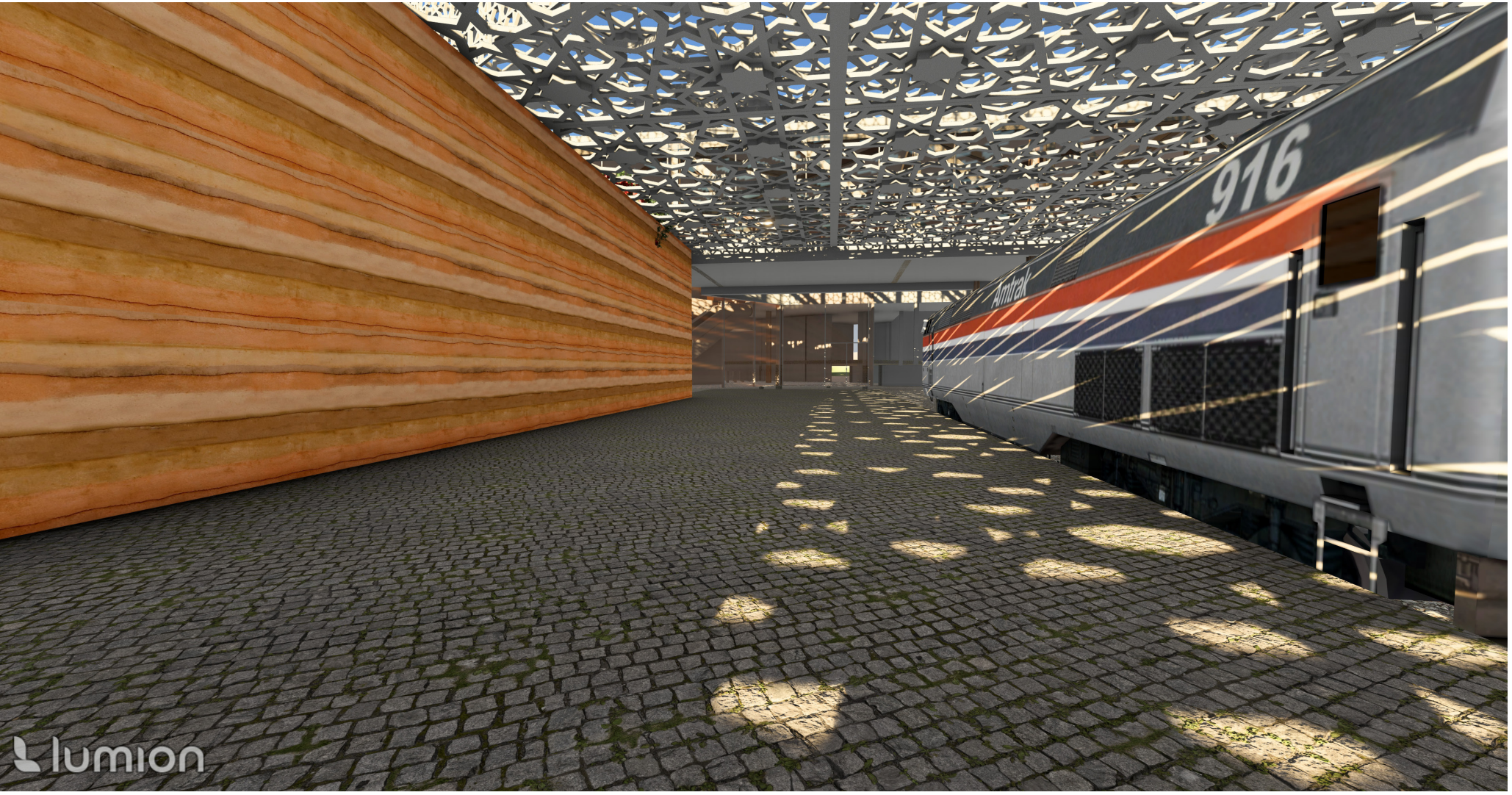


Bougainvillea glabra



EURYOPS PECTINATUS

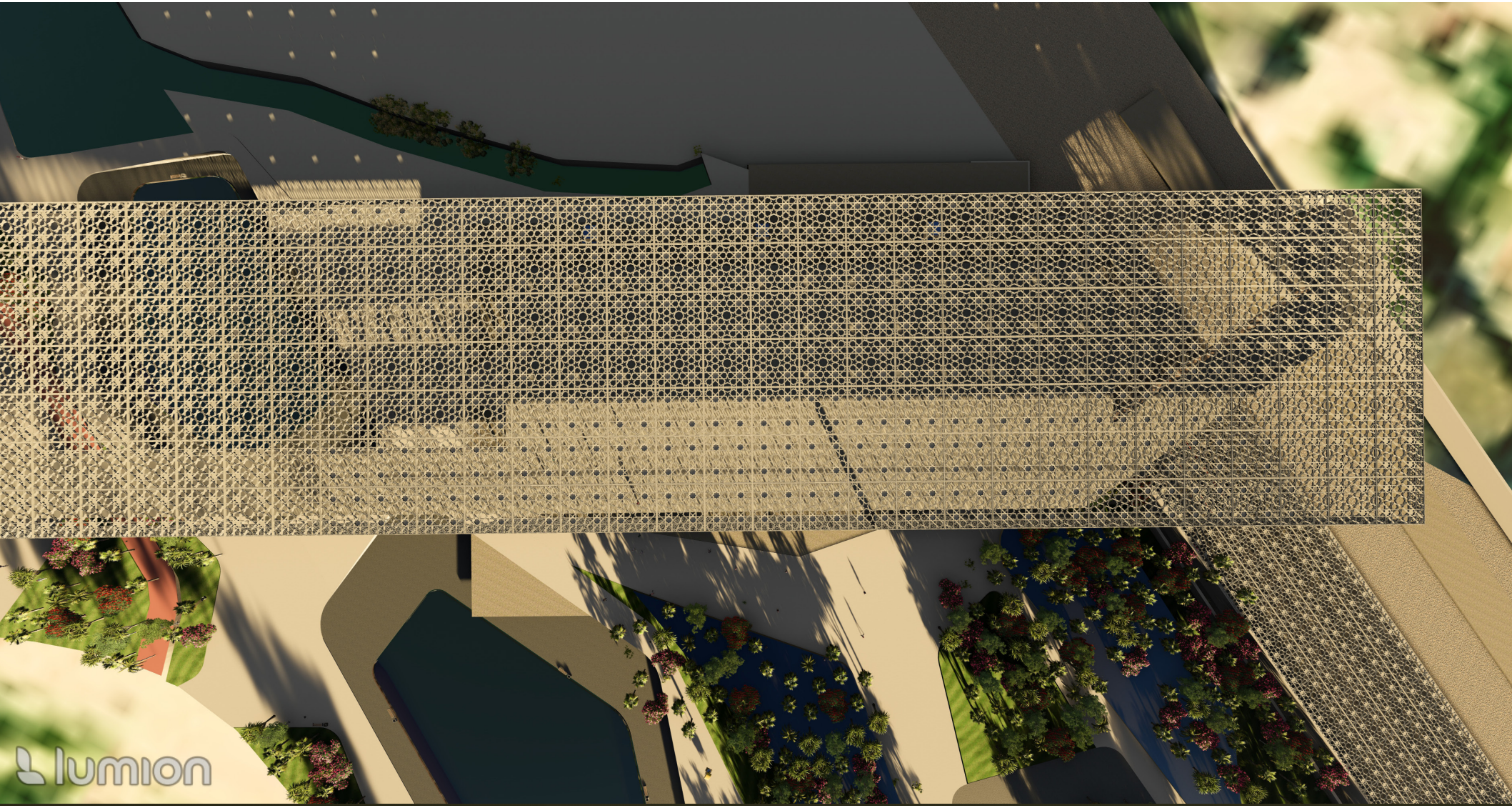
THE BUILDING



THE BUILDING

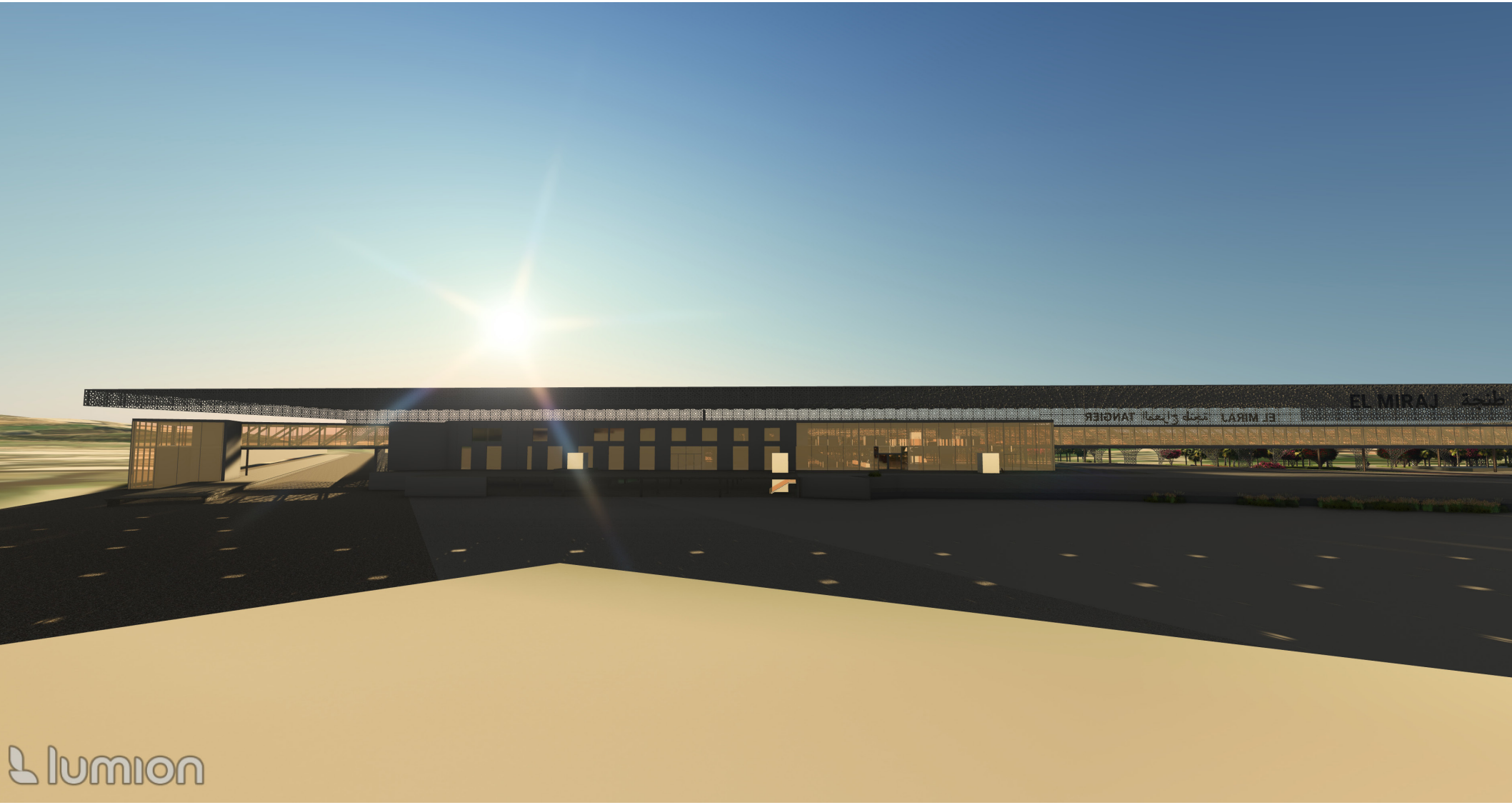


THE BUILDING



THE BUILDING

BIRD'S EYE



BIRD'S EYE

