

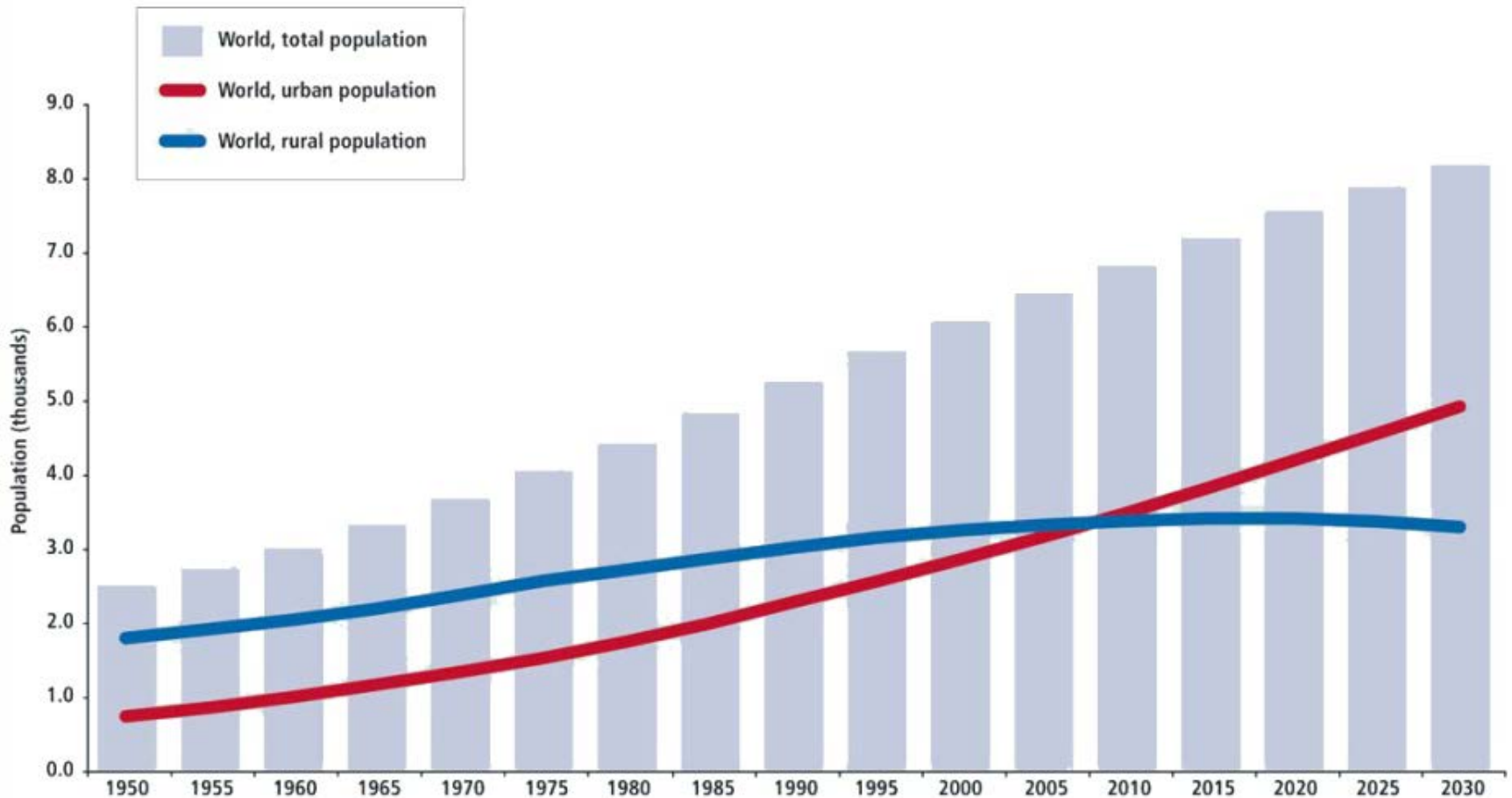
URBAN REGENERATION CENTRED AROUND PUBLIC TRANSPORT

Jumeirah Central Development
The first Transit Oriented Development of Dubai

Growing Cities, A Global Trend

Different Urban Regeneration Models

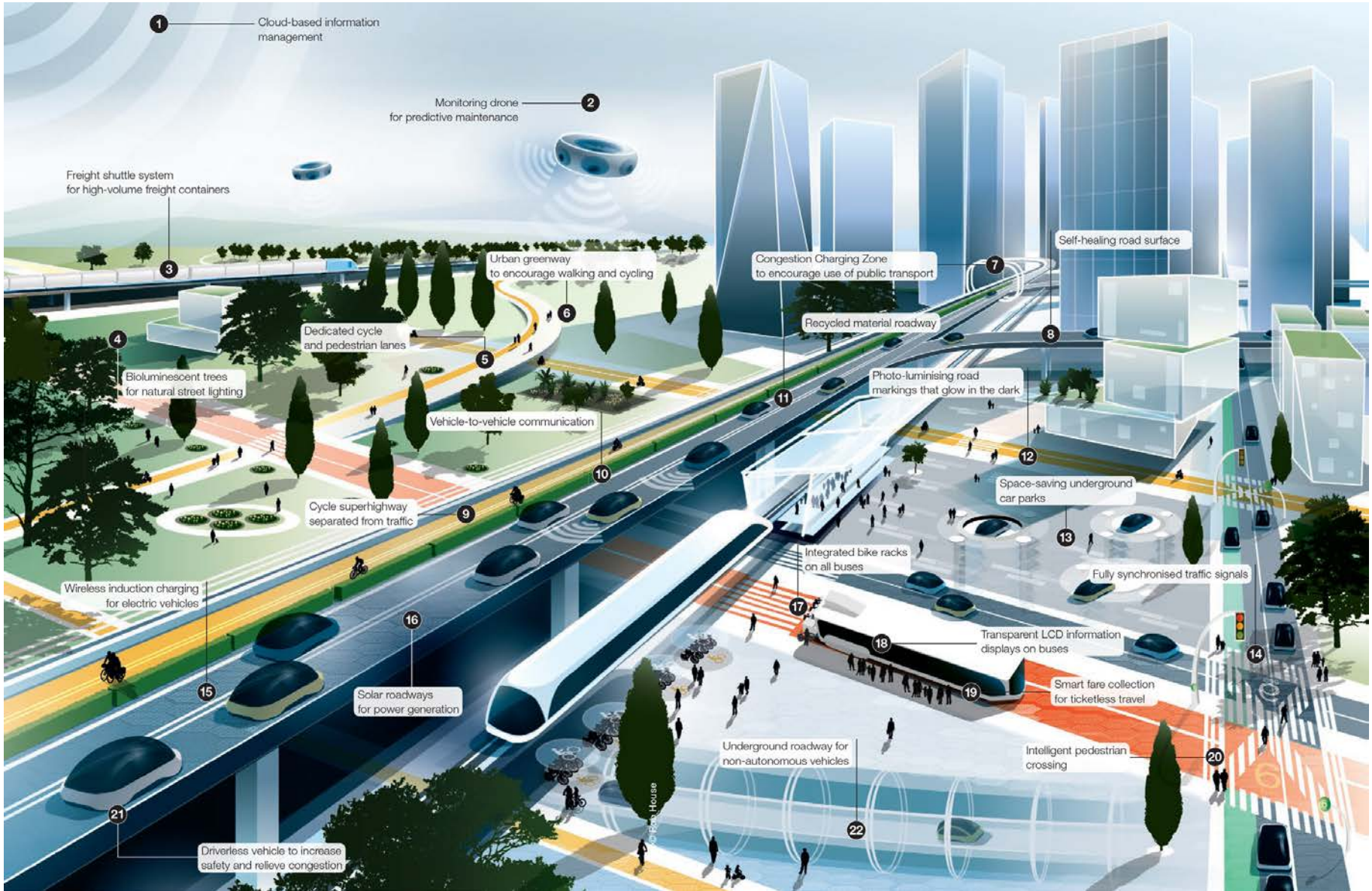
The urban and rural population of the world, 1950-2030



© London School of Economics – The Endless City

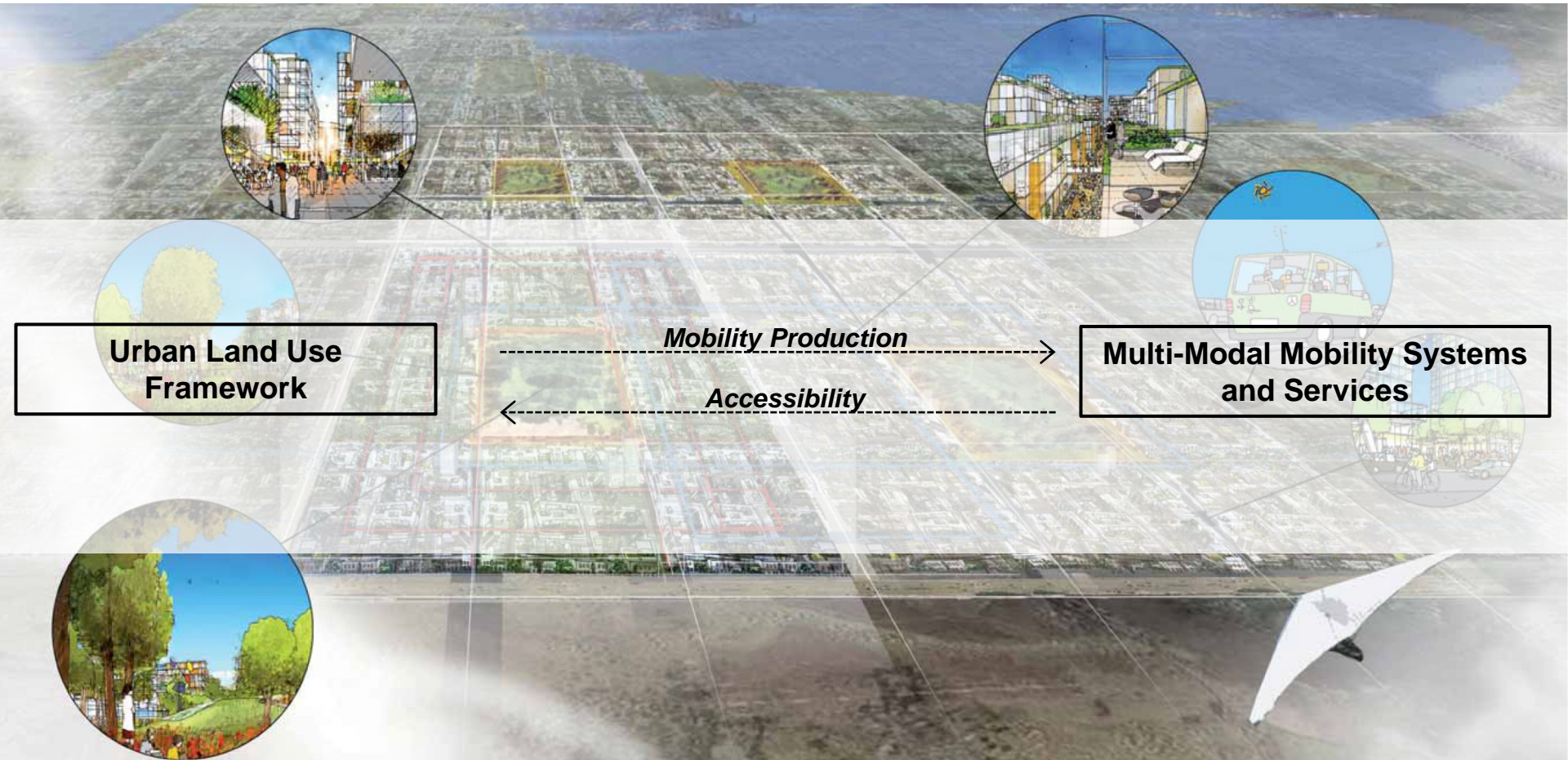
How to tackle emerging urban mobility issues?

Smart Mobility and Intelligent Infrastructures



Integrated Urban and Transport Planning

Mobility as part of a quantitative discipline



© KHRONOPOLIS, *Accessible Cities, Possible Cities*, arch. prof. Fabio Casioli, Founder of Systematica

Integration between transport and **mixed land use development**

Allocation of well balanced **public oriented functions and services**

Promotion of **urban density** properly located around hubs

Environmental sustainability (noise, vibration and pollution)

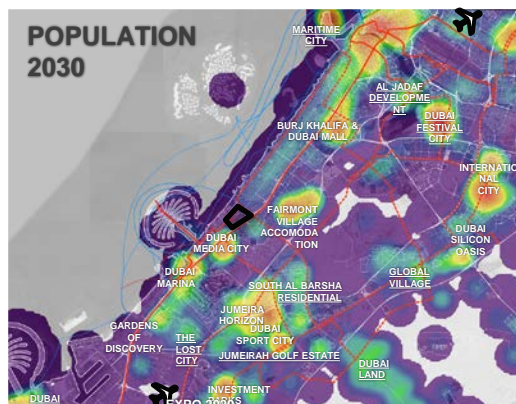
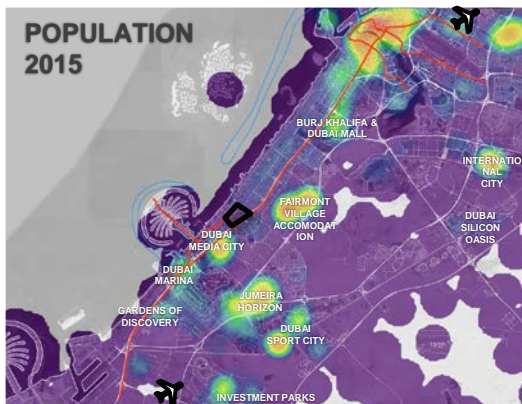
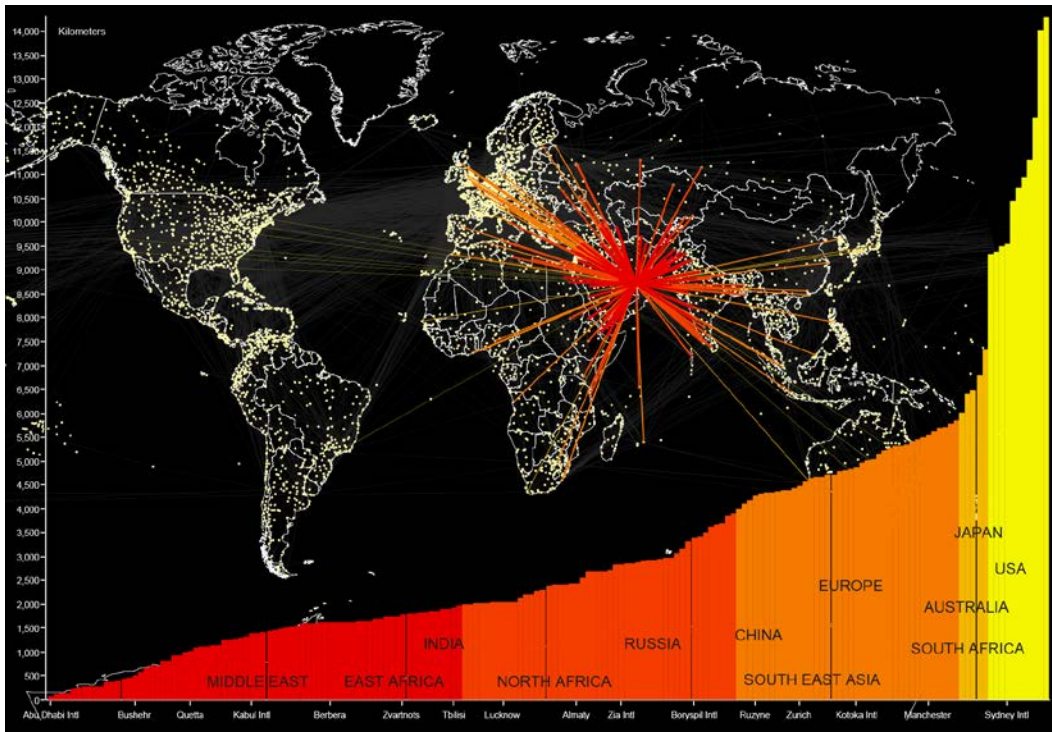
Well connected and **permeable built environment** to avoid urban physical segregation

Proper private and public **parking provision** to encourage PT

Urban transport hub as **city landmark** and **catalyst for economic vitality**

Dubai

A worldwide Key Destination City





METRO

TYPE: 5 cabins automatic train

CAPACITY: 142 seated + 500 standing (642 total – max 897)

SPEED: 40-50 km/h (max. 90 km/h)

FREQUENCY: 3.45 min (peak hours)
7-10 min off-peak hours

OPERATION HOURS: 6 am – 11 pm
(Friday 2 pm – 12 pm)

TRAM

TYPE OF VEHICLE: 7 cabins low floor train

CAPACITY: 405 passengers

SPEED: 20-30 km/h (max. 50 km/h)

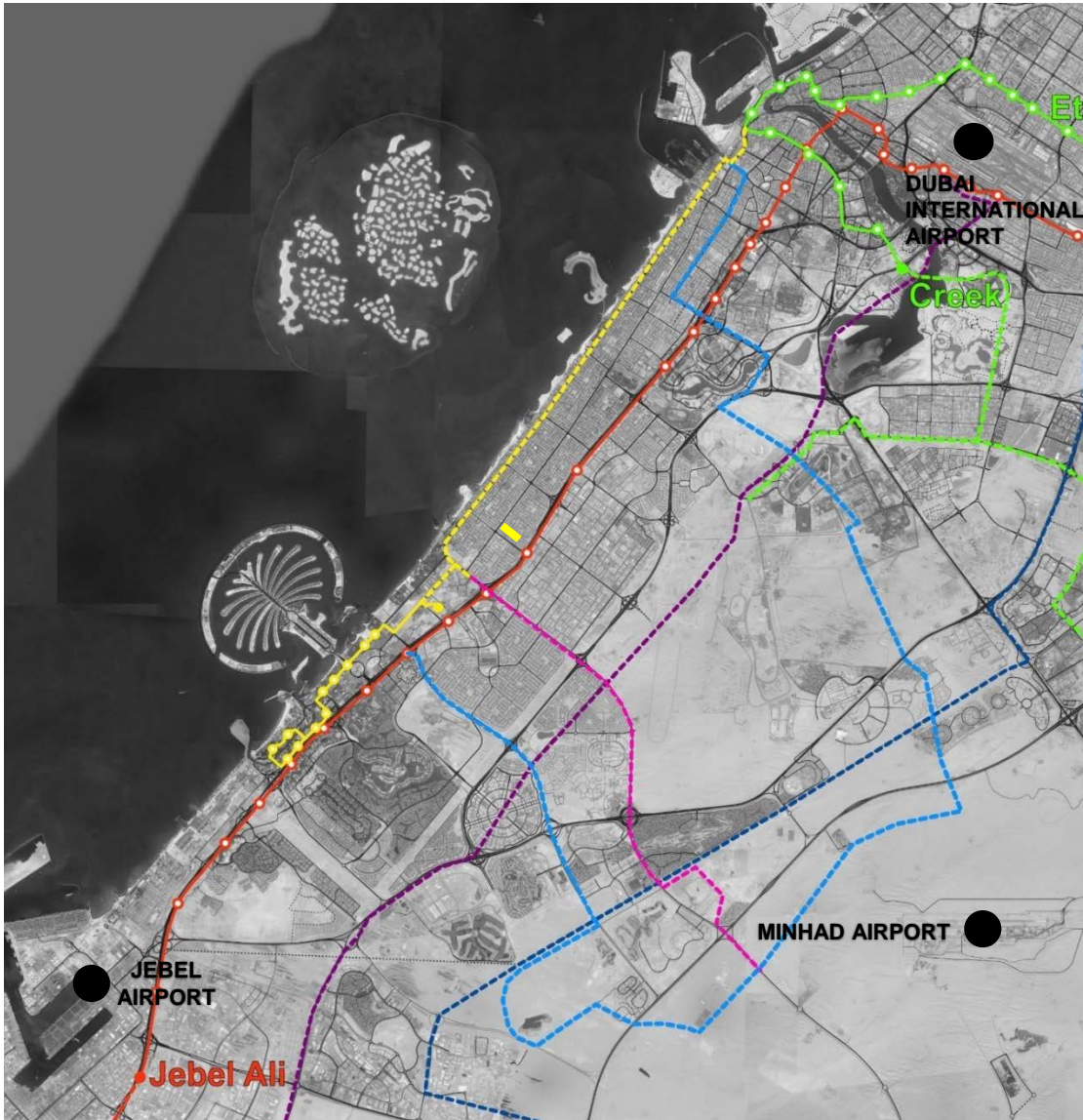
FREQUENCY: 6 min

OPERATION HOURS: 6:30 am – 1:30 am
(Friday 9 am – 1:30 am)

- █ METRO LINE 1
- █ METRO LINE 2
- █ TRAMWAY

Dubai

Future Planned Public Transport System (2030)



METRO EXTENSION PLANNED

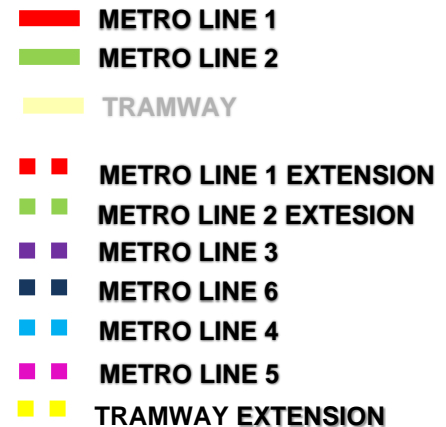
- 24 km and 12 stations in 2020
- 91 km and 58 stations in 2025
- 221 km and 69 stations in 2030

Total network in 2030:

421 km and 197 stations

TRAM EXTENSION PLANNED

- 4 km and 6 stations towards Mall of Emirates



Dubai

Current and Future Modal Share

CURRENT MODAL SHARE

© RTA «Overview of Dubai Rail Project» 2014



FUTURE MODAL SHARE

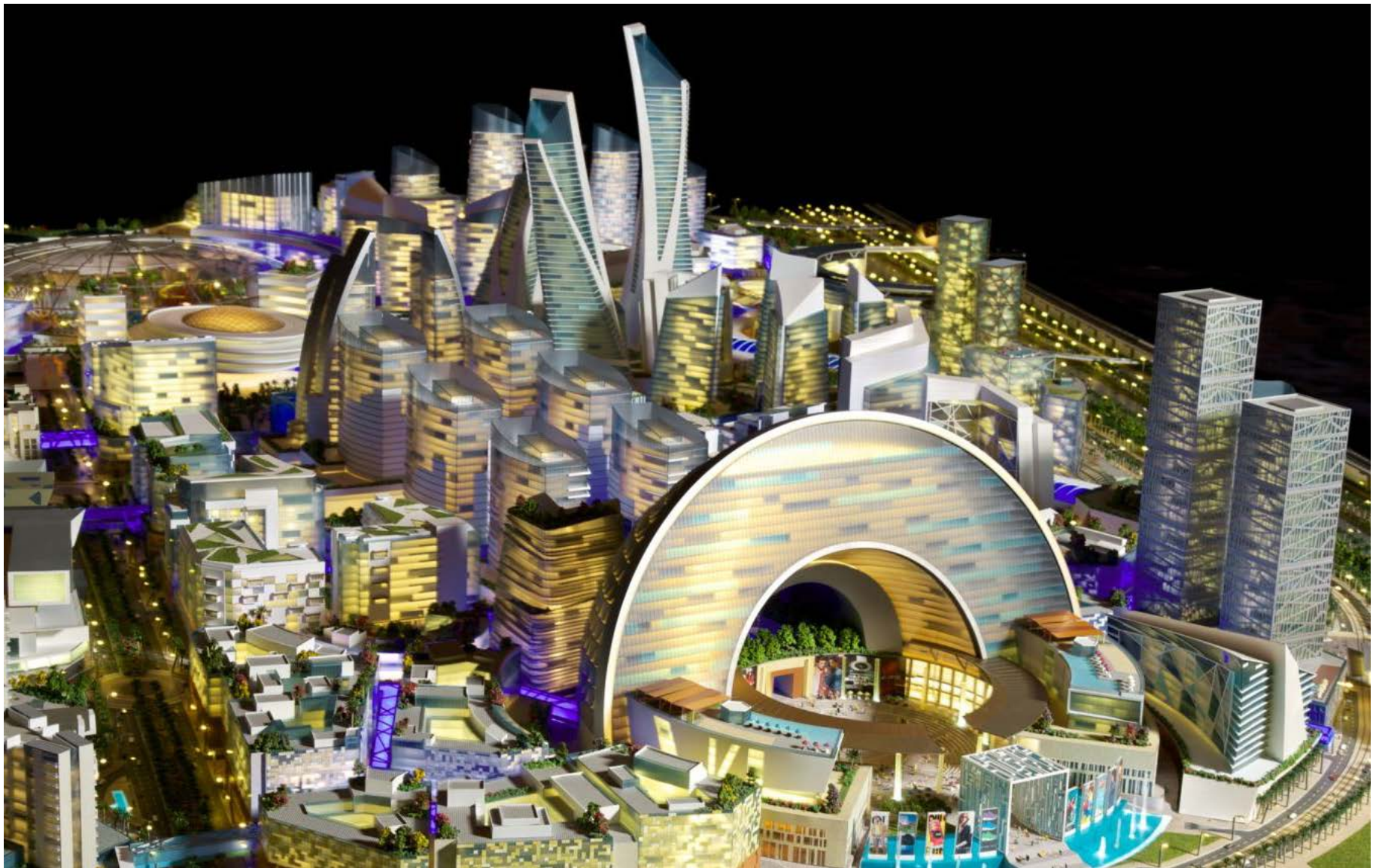
© RTA «Overview of Dubai Rail Project» 2014





Jumeirah Central – Former Mall of the World

The Original Master Plan



Jumeirah Central Development | Former Mall of the World

The Original Infrastructural System



Key Aspects

- Multimodal **Accessibility**
- **Walkable** development (Public Spaces / Shared Environment)
- **Transit Oriented** Development
- Mobility As a **Service**
- **Smart** Mobility
- **Intelligent** infrastructure
- Customer / User Experience
- **Resilient** Infrastructure
- **Driverless** Experience (CAV)
- Cost Effectiveness / Value Engineering
- City Logistic
- **Phasing**

The Three Main Pillars



JUMEIRAH CENTRAL DEVELOPMENT TRANSPORT STRENGTHS



PANTECH

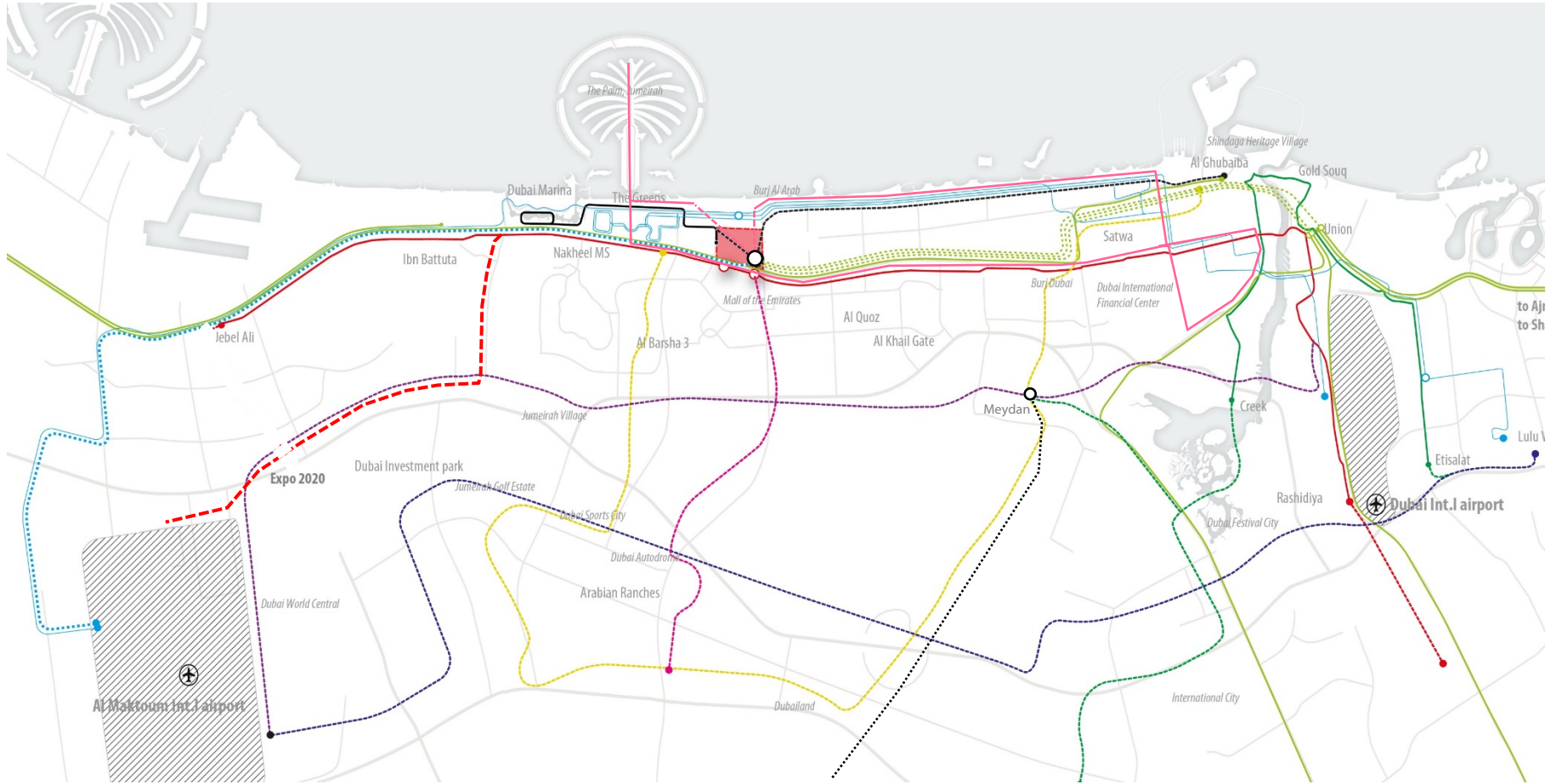
BMP

Vine



Jumeirah Central Development | Highly Accessible

Public Transport Accessibility



INTERNATIONAL (AIRPORTS):

1 METRO LINE TO DXB

+ 1 METRO LINE TO DWC

+ 1 EXPRESS LINE TO DWC

REGIONAL:

+ 1 LINE PASSING BY ON SZR

+ 4 TERMINUS LINES

CITY SCALE:

1 METRO STOP (RED LINE)

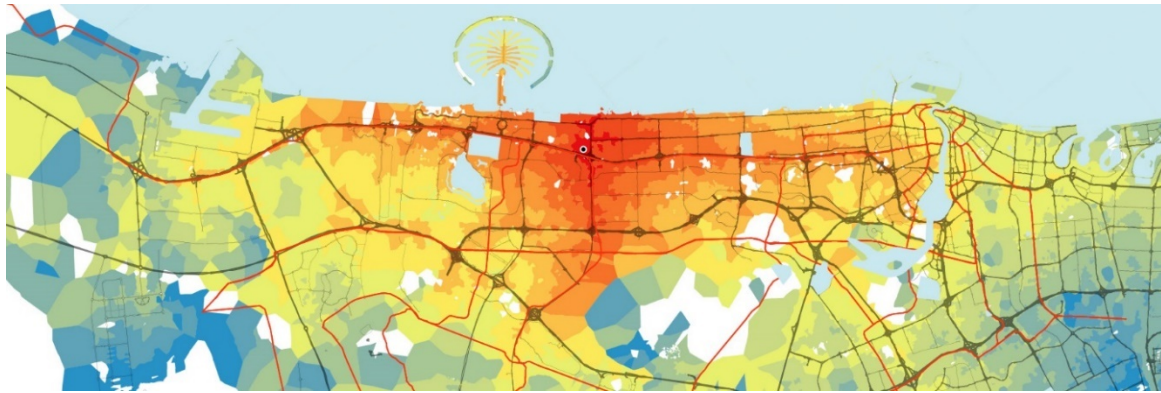
+ 1 METRO STOP (PINK LINE)

+ 2 TRAM LINES

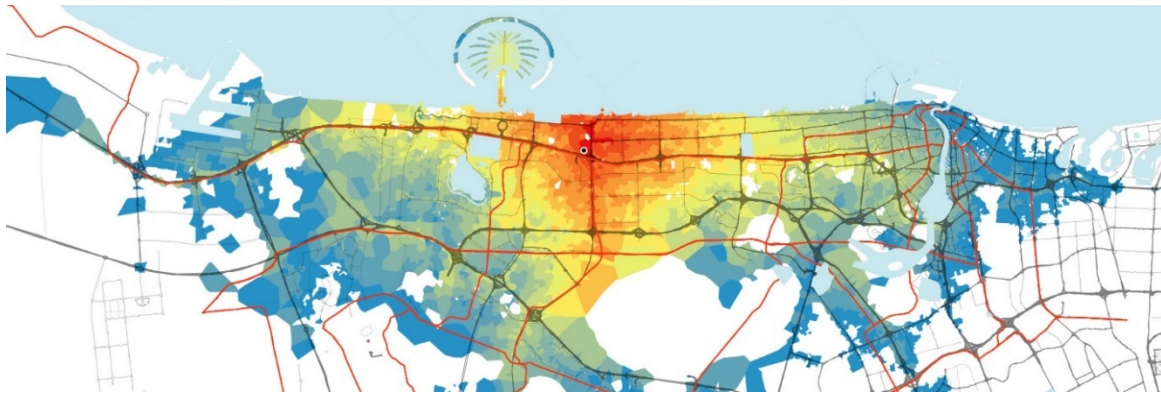
+ 2 TOURISTIC BUSES

Jumeirah Central Development | Highly Accessible

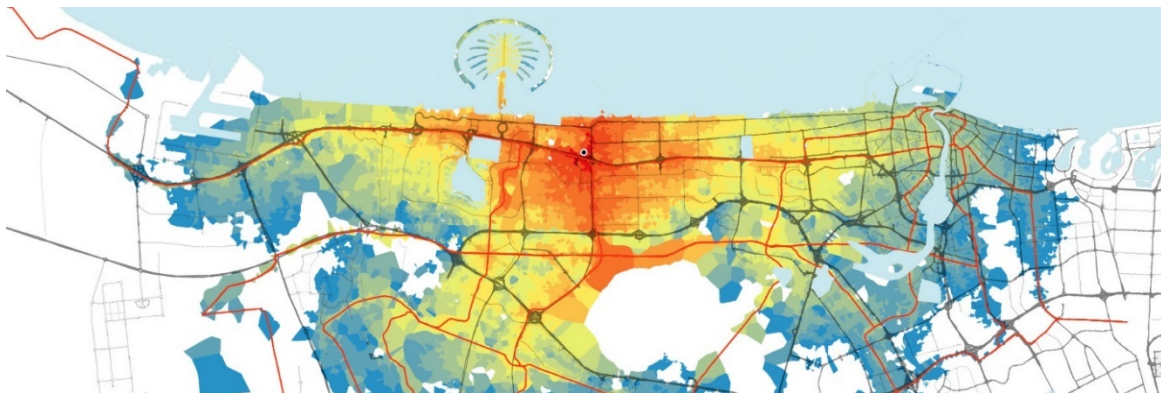
Isochronal Analysis and Catchment Area at Metropolitan Scale



CARS
OFF-PEAK HOUR

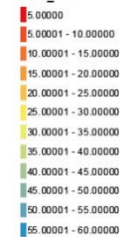


CARS
PEAK HOUR



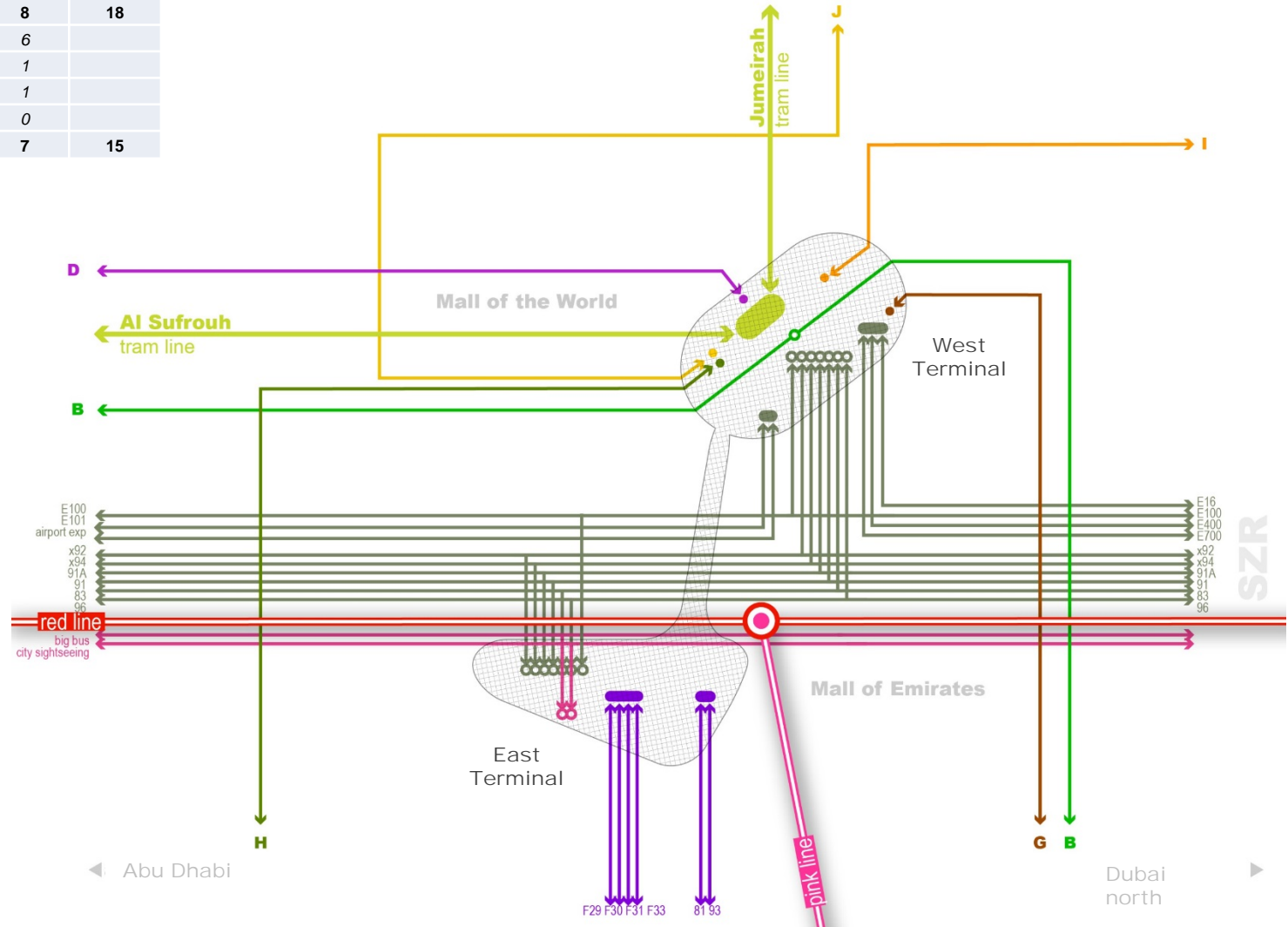
PUBLIC
TRANSPORT

Minutes

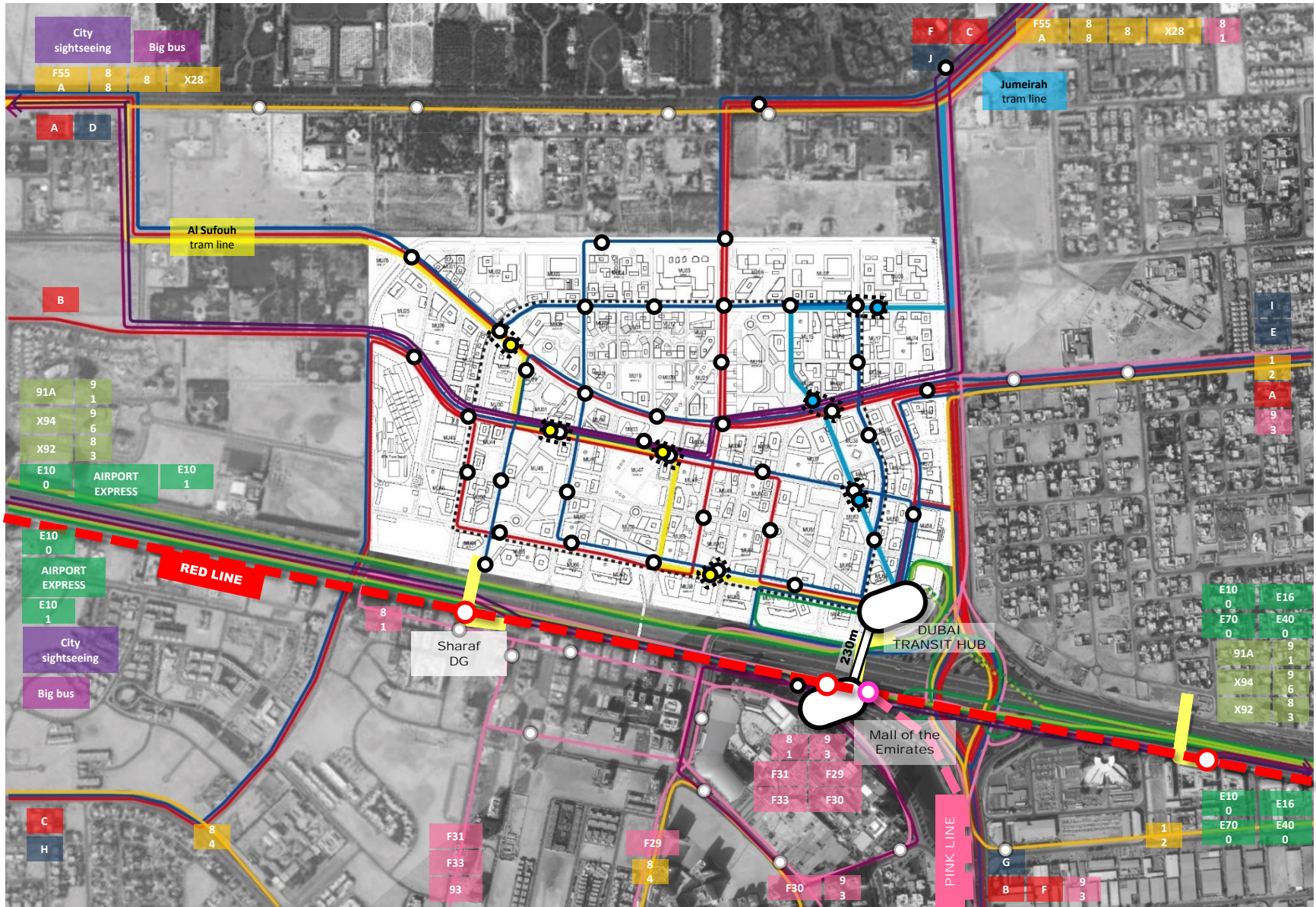


Jumeirah Central Development | Highly Accessible Integrated Public Transport Provision

	Terminus	Stop	Total
Metro	1	1	2
Tram	2	0	2
Bus West Terminal	10	8	18
<i>Local</i>	0	6	
<i>Local new</i>	5	1	
<i>Regional</i>	4	1	
<i>Airport</i>	1	0	
Bus East Terminal	8	7	15



Jumeirah Central Development | Highly Accessible Integrated Public Transport Provision





STATION

ESCADA

Lafayette

BEVERLY CROSSING

CAFE



At least 50% of dwelling units and nonresidential use entrances are within 400 meter walking distance of stop, or within a 800-meter walking distance of mass rapid transit station.



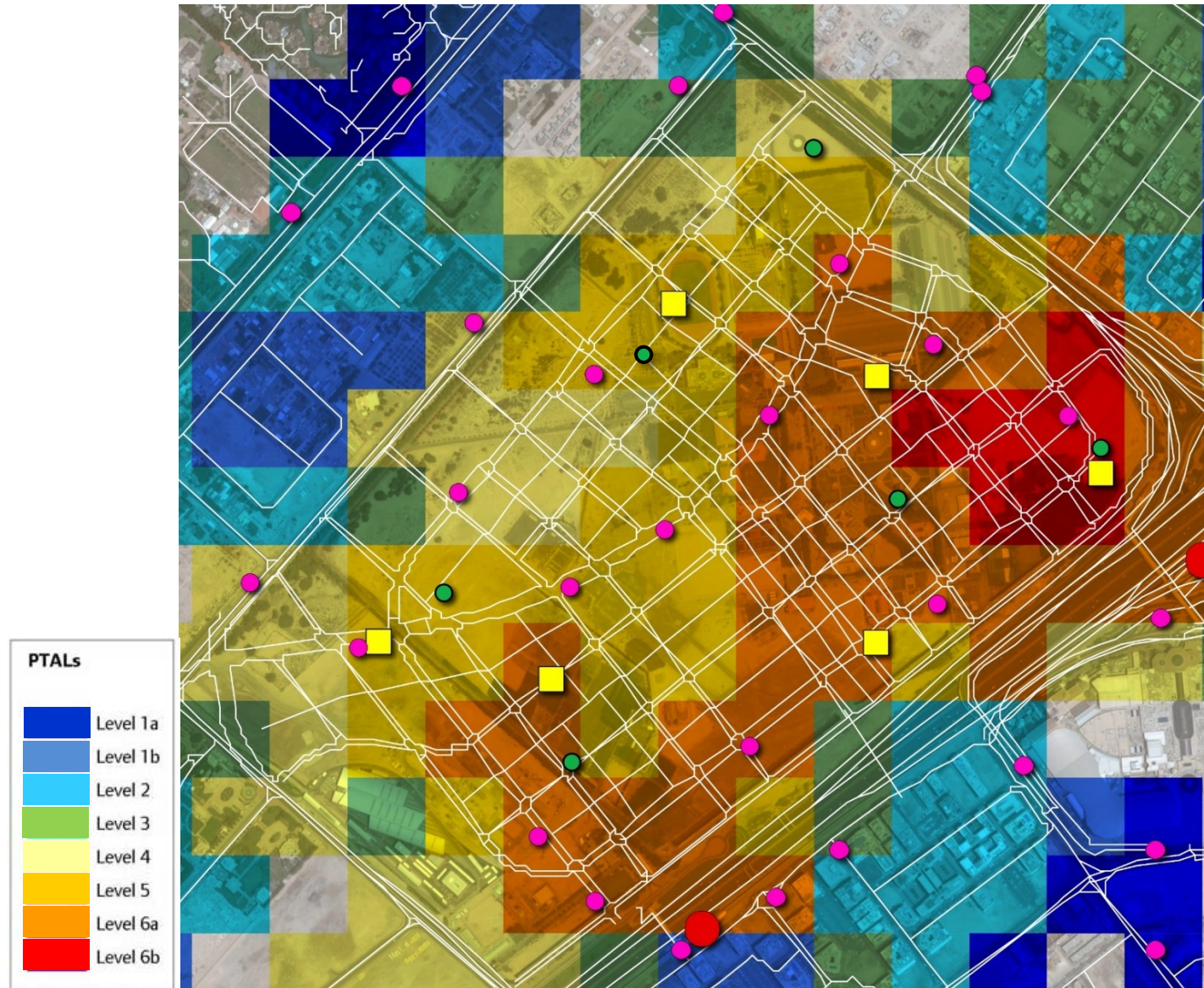
3 minutes from public transport stop, 200 meters

Dubai Metro (Red Line)	Timetable	Interval	Trips per day	LEED – ND minimum daily service	LEED – ND compatible
Weekday	05.30 – 12.00	8 min	139	60	Yes
Weekend	10.00 – 01.00	8 min	129	40	Yes

Dubai Tram	Timetable	Interval	Trips per day	LEED – ND minimum daily service	LEED – ND compatible
Weekday	06.30 – 01.00	6 min	185	60	Yes
Weekend	09.00 – 01.00	6 min	160	40	Yes

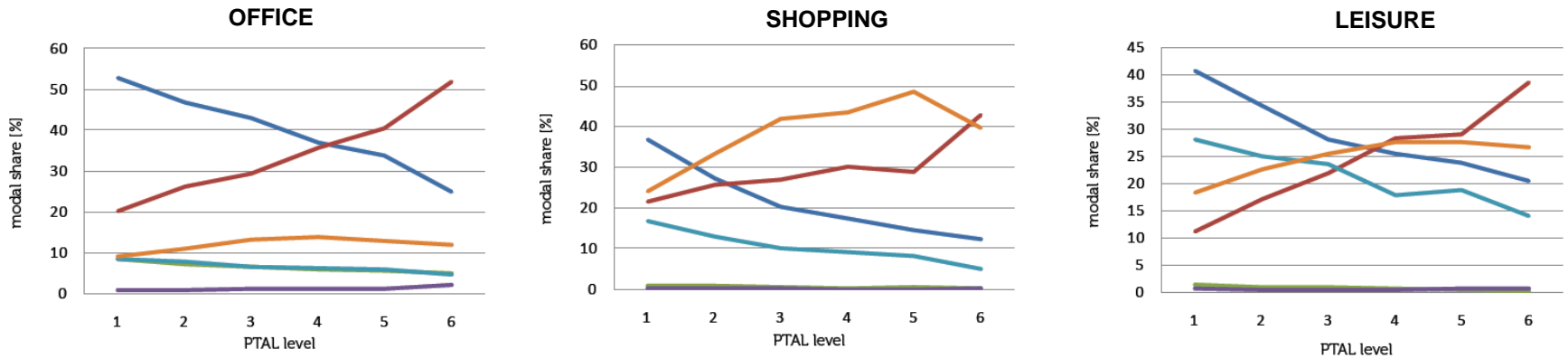
Jumeirah Central Development | Highly Accessible

Public Transport Accessibility Levels (PTALs)

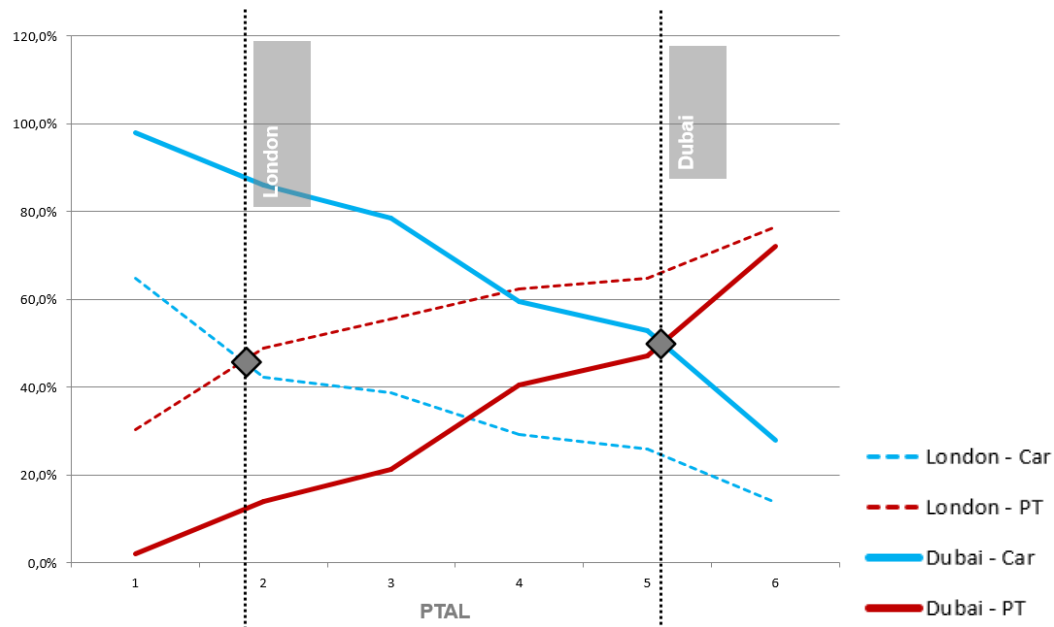


Jumeirah Central Development | Highly Accessible

Relation PTAL - Expected Modal Split



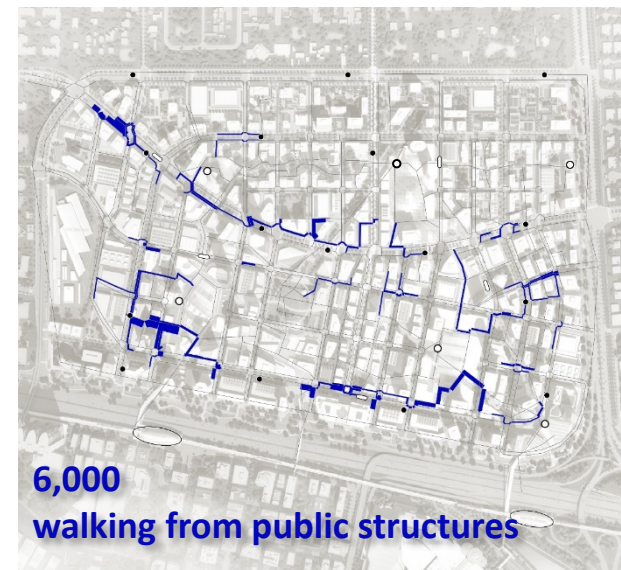
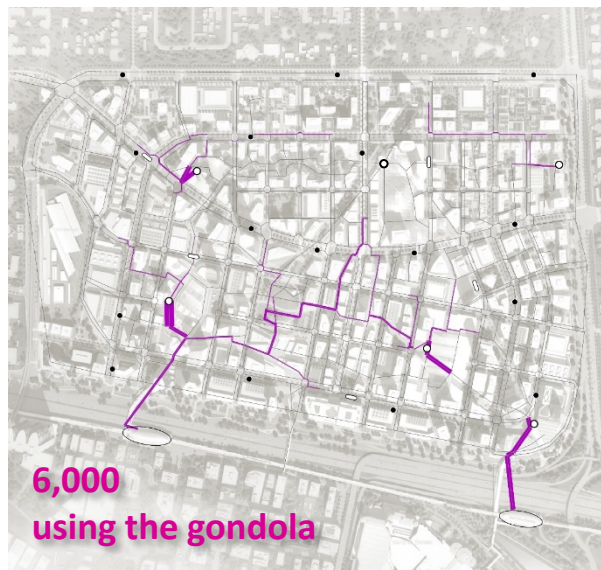
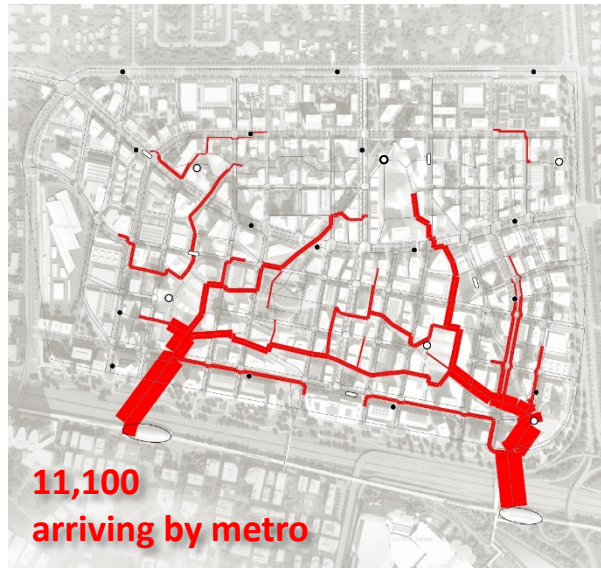
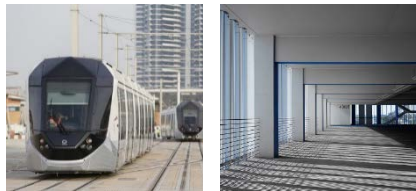
— CAR — PT — VAN — MOTORBIKE — PASSENGER — OTHER



Jumeirah Central Development | Highly Accessible

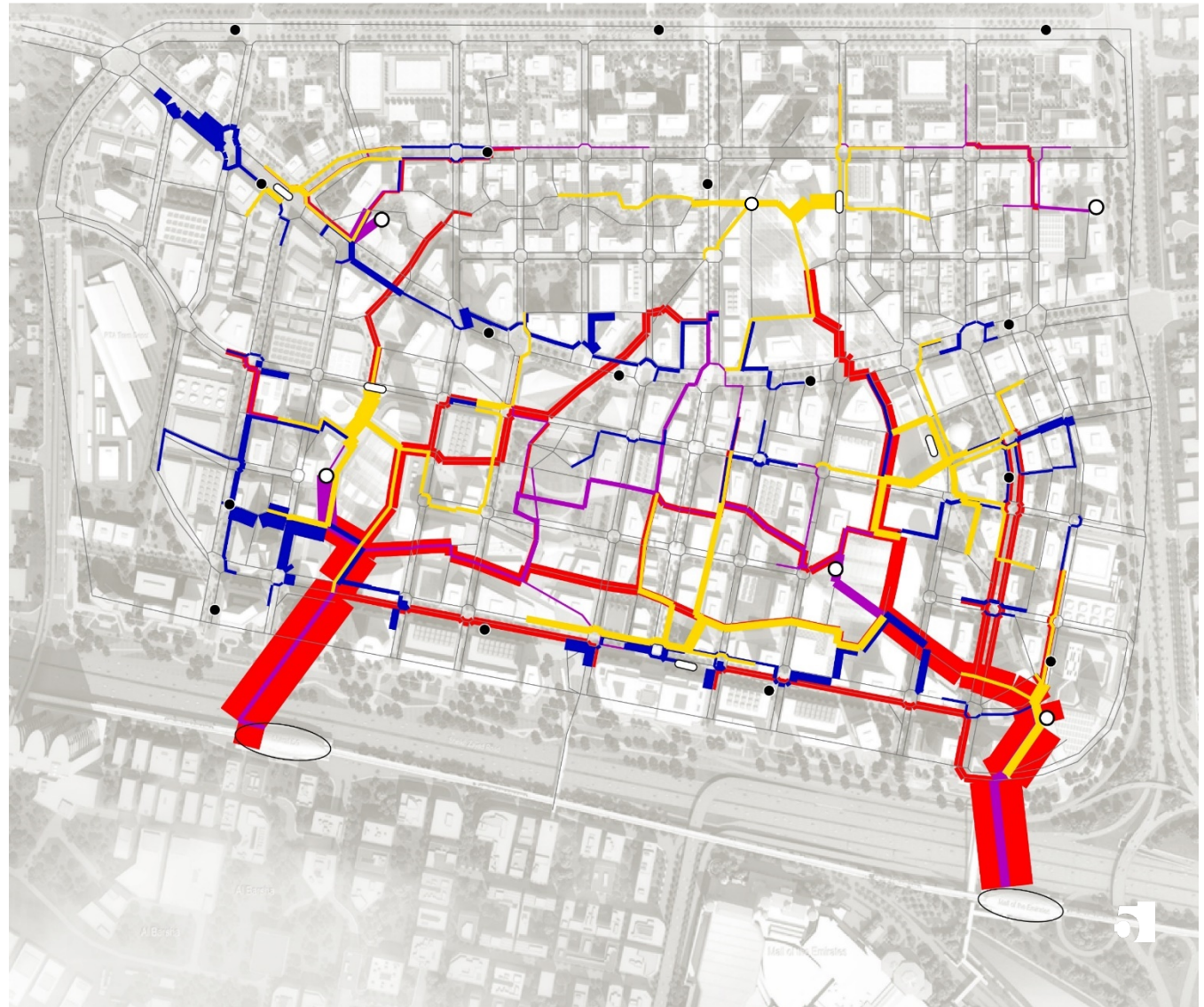
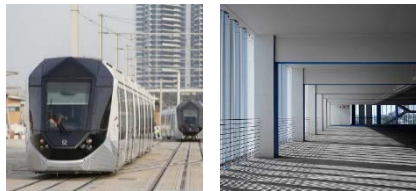
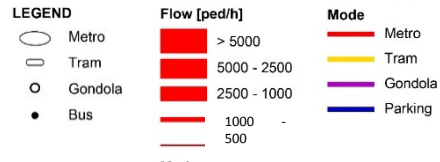
Expected PT-related Pedestrian Movements

- LEGEND**
- Metro
 - Tram
 - Gondola
 - Bus
- Flow [ped/h]**
- > 5000
 - 5000 - 2500
 - 2500 - 1000
 - 1000 > 500
 - < 500
- Mode**
- Metro
 - Tram
 - Gondola
 - Parking



Jumeirah Central Development | Highly Accessible

Expected PT-related Pedestrian Movements



Jumeirah Central Development | Highly Accessible Self-Driving Group Rapid Transit (GRT) Service

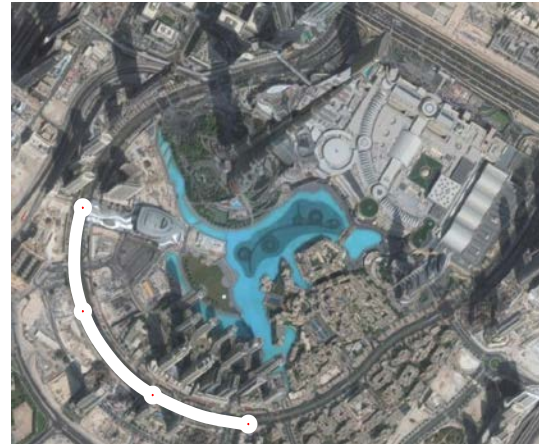
PHASE 1

Dubai World Trade Center



PHASE 2

Sheikh Mohammed bin Rashid Boulevarda



PHASE 3

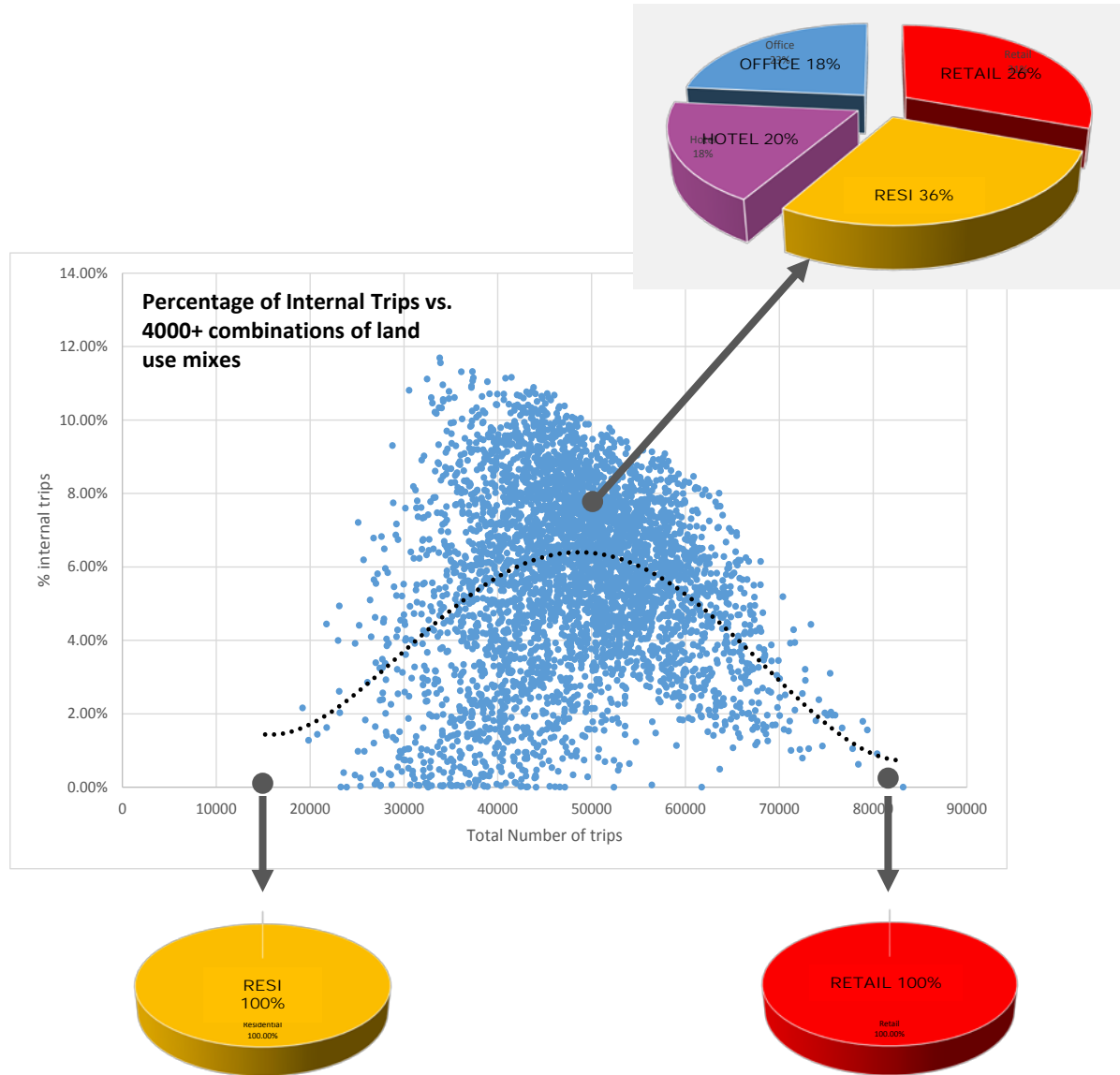
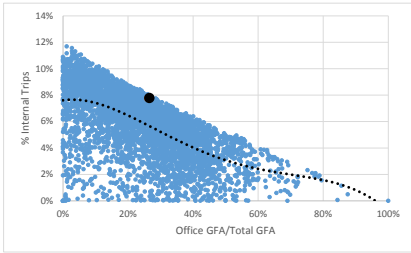
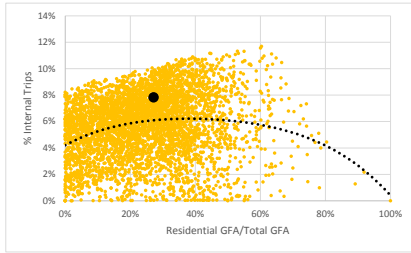
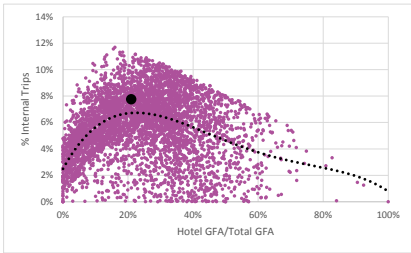
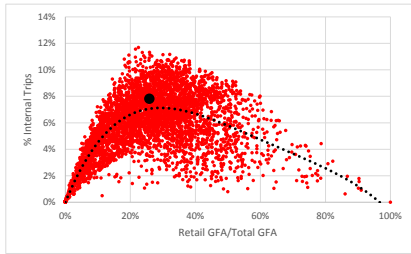
Business Bay





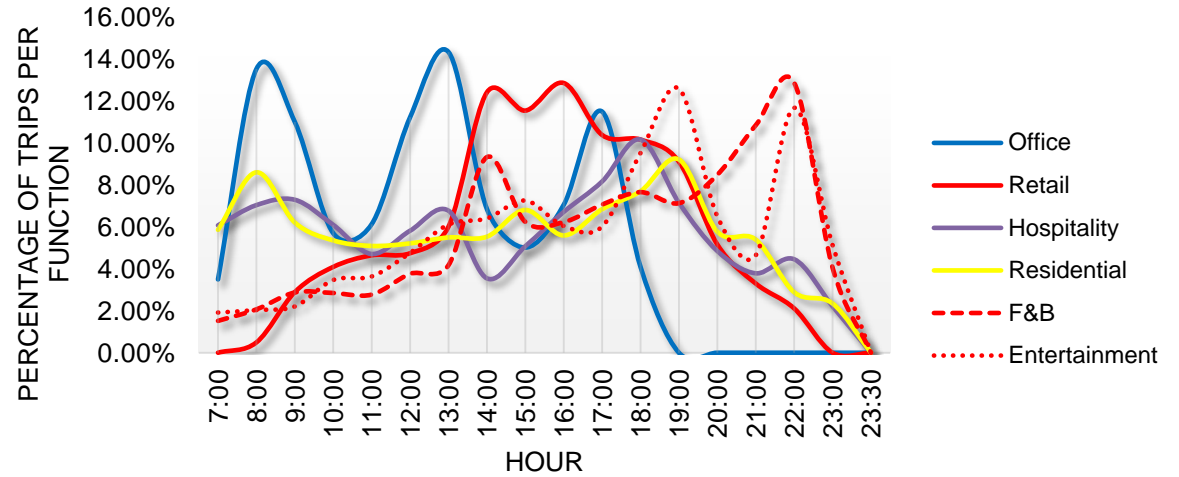
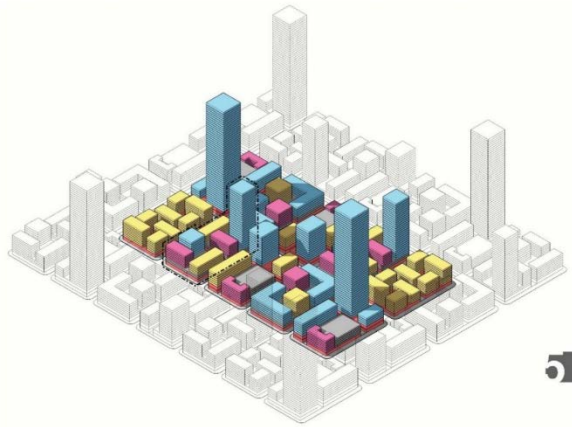
Jumeirah Central Development | Highly Land-Use-Mixed

Functional Mix and Distribution

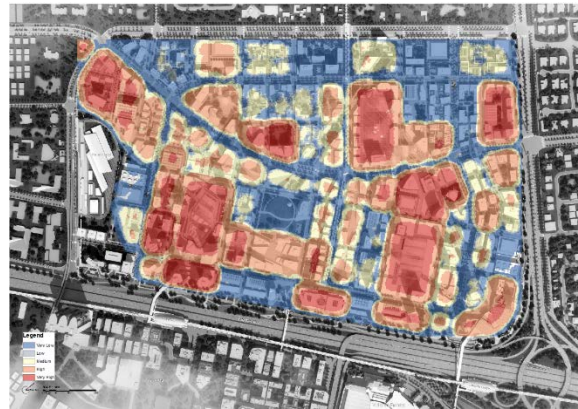


Jumeirah Central Development | Highly Land-Use-Mixed

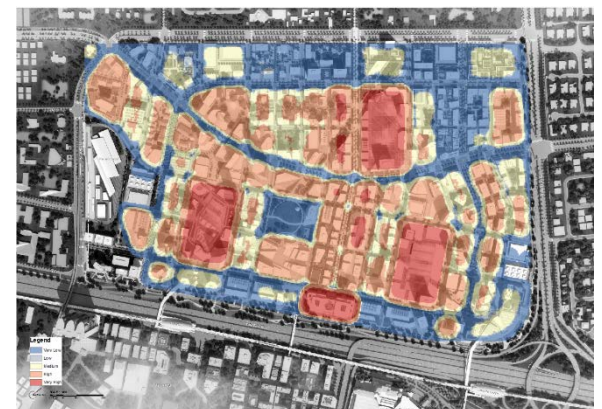
Functional Mix and Distribution



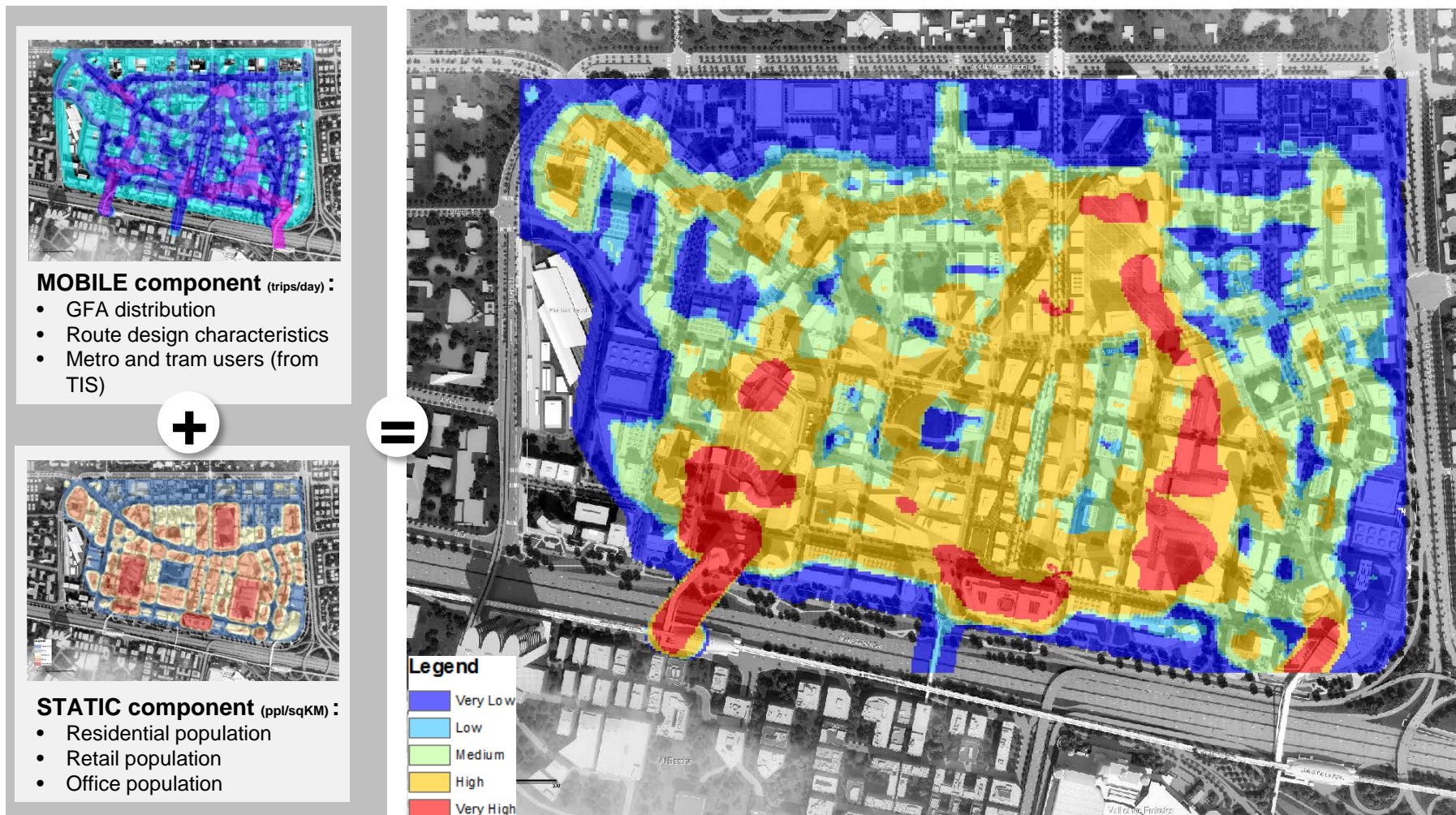
36,000 RESIDENTS



64,000 EMPLOYEES



182,000 VISITORS



A WEB-BASED APP HAS BEEN DEVELOPED TO MAP AND CONTROL THE TRANSPORT PROVISION DURING THE PLANNING PHASE



motw.systematica.net

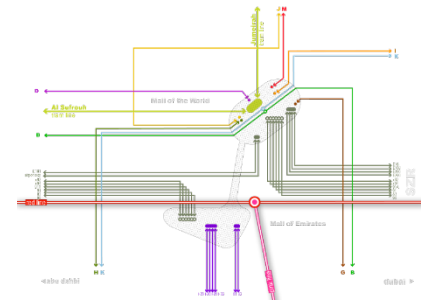


1. Advanced Trip generation methodologies
2. Functional Mix and Distribution
3. Resident and User Population Density
4. Urban Grain and Block Sizes
5. Network Hierarchies and Permeability
6. Public Transport Accessibility
7. Ground Floor Activation
8. Sight Lines and Space Intuitiveness
9. Road Design
10. Season-proof Development
11. Quality of Experience and Safety Conditions

PLANNING STRATEGIES



TRANSPORT OPPORTUNITIES



DESIGN CONFIGURATION

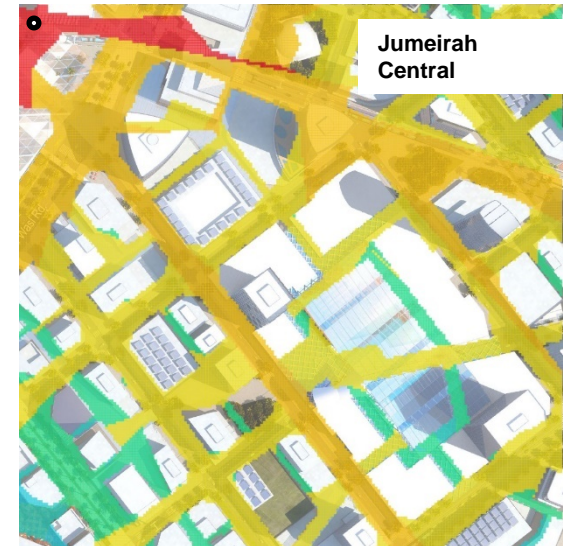
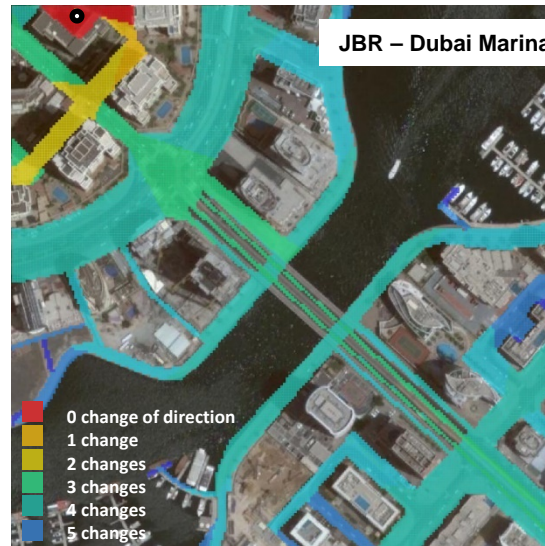


Jumeirah Central Development | Highly Walkable

Spatial Analysis of the pedestrian network

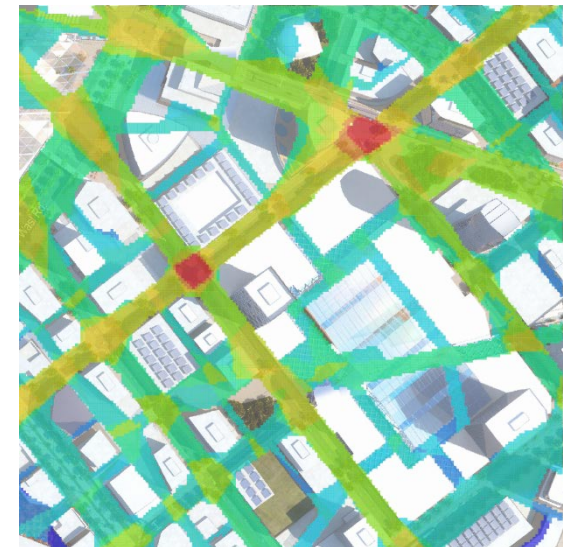
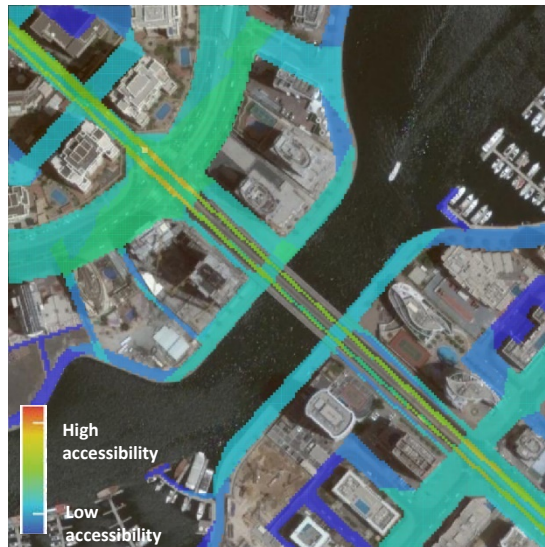
Changes of direction

Pedestrians tend to walk in more accessible places, where it is possible to get in 2-3 changes of directions.



Visual integration

The maps on the right show the number of changes of directions from all points to all points in the map



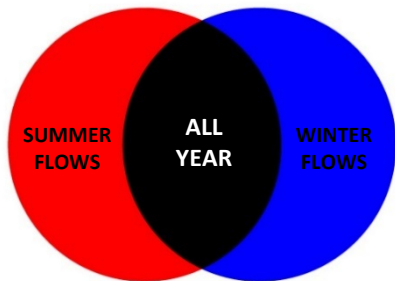
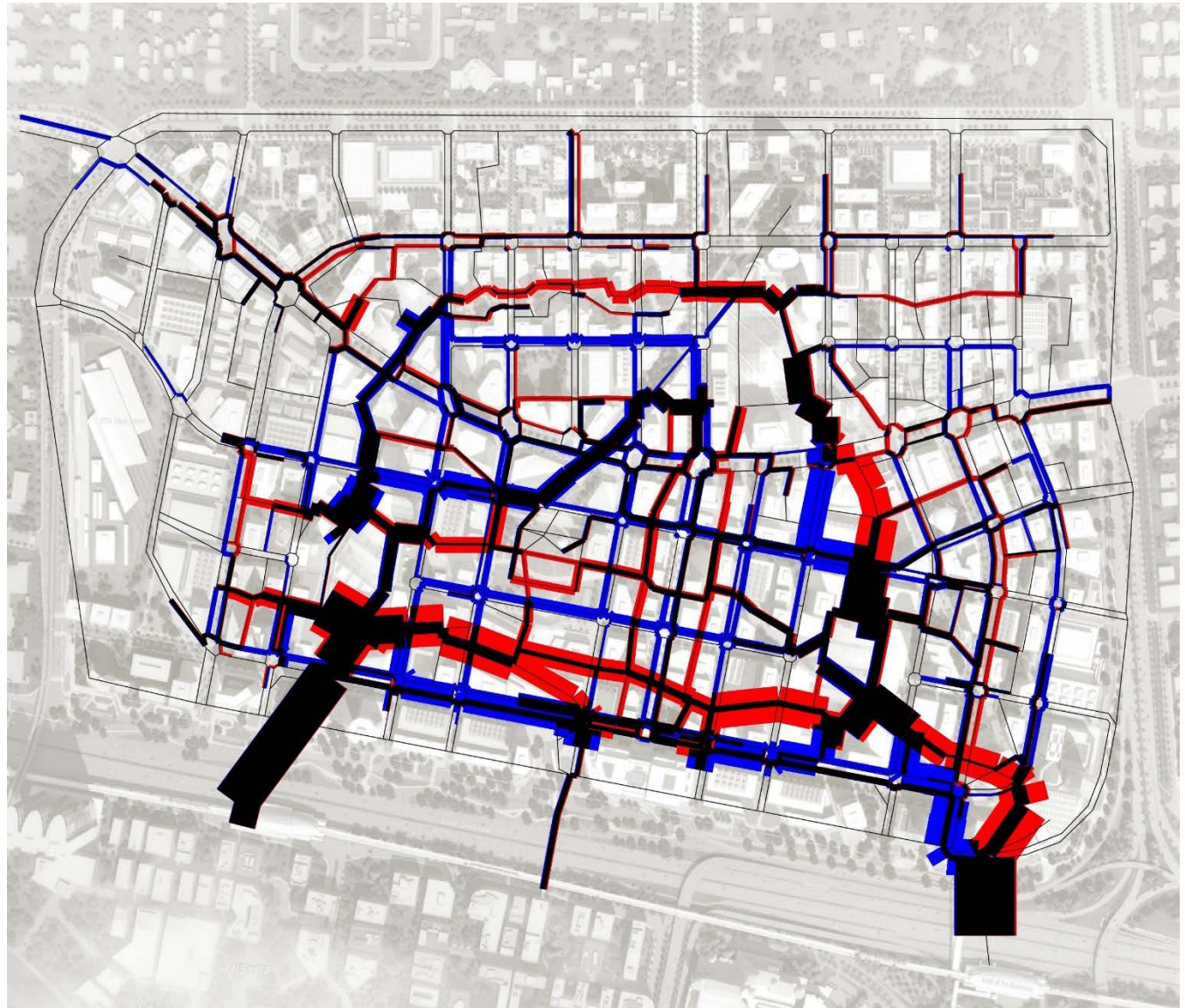
Jumeirah Central Development | Highly Walkable

Season-proof Development



Jumeirah Central Development | Highly Walkable

Season-proof Development





thank you for your attention!

Diego Deponte
Email: d.deponte@systematica.net
M: +39 349 228 4083
www.systematica.net