

changing economies

urban restructuring of the city of **mumbai** in the context of changing economic conditions

p 5 presentation | 30th June, 2009

mentor team: stephen read, joost schrijnen, willem hermans
studio: complex cities

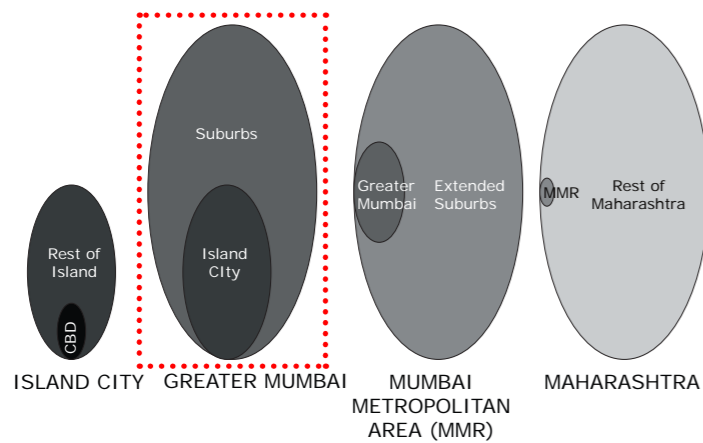
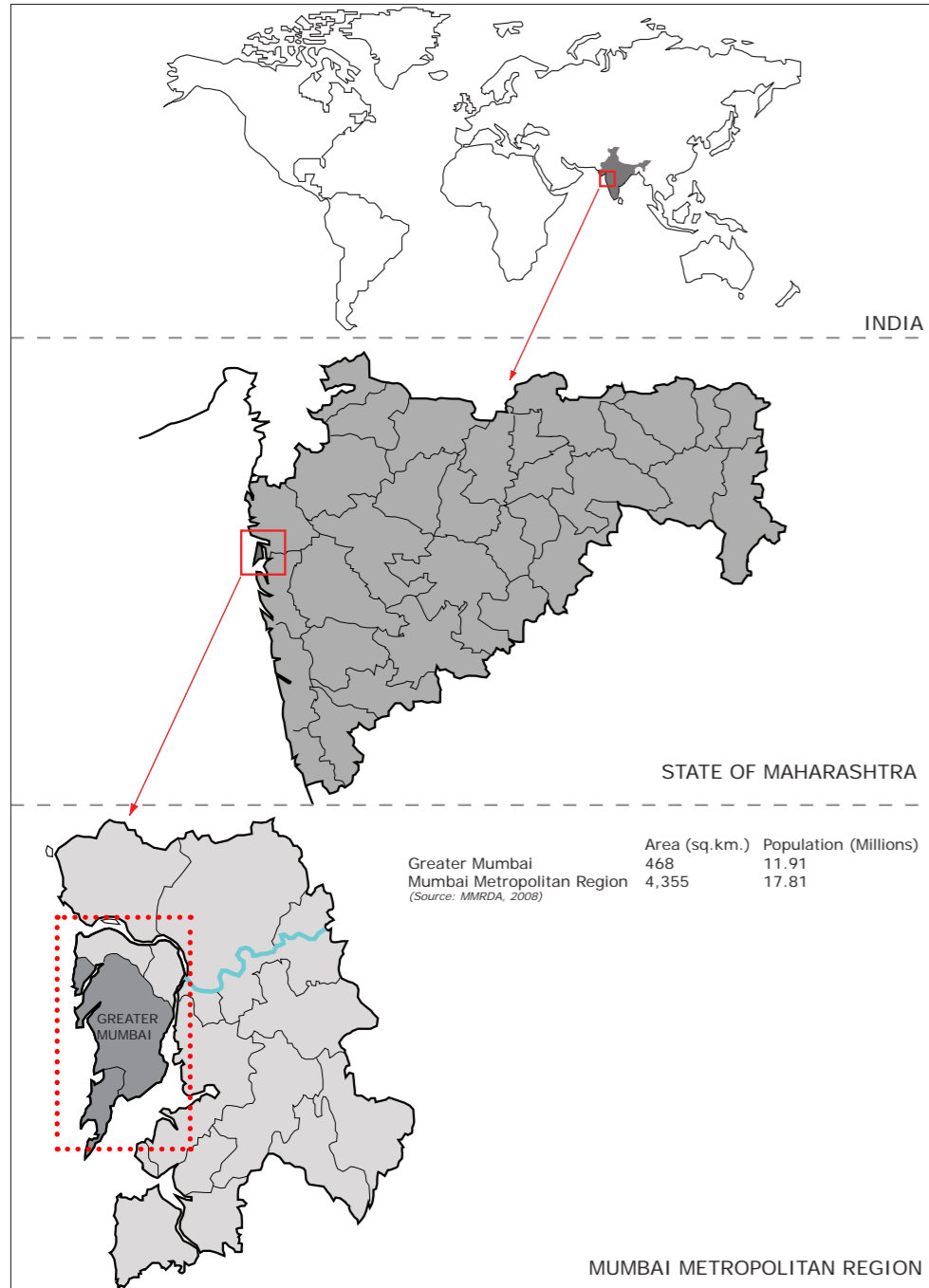
susan raju | 1391623

graduation project, msc urbanism
faculty of architecture, TU delft



MEGACITY

POPULATION & URBAN STRUCTURE



COMPLEXITY

ECONOMIC STRUCTURE

Dominant Economy_ Service Sector

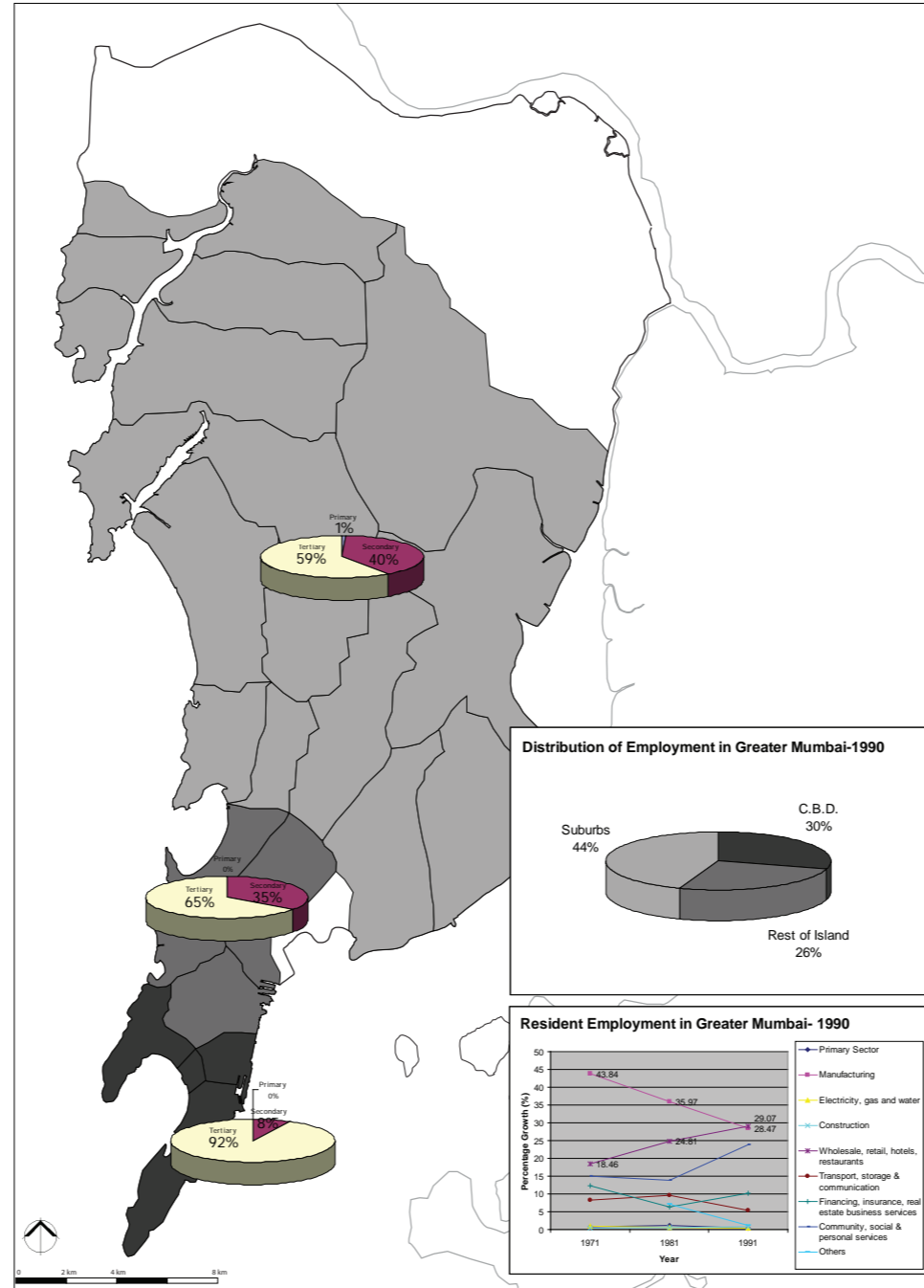
Financial Heart

Manufacturing

Informal Economy

Entertainment Capital (Bollywood)

Shopping District- Commercial Heart

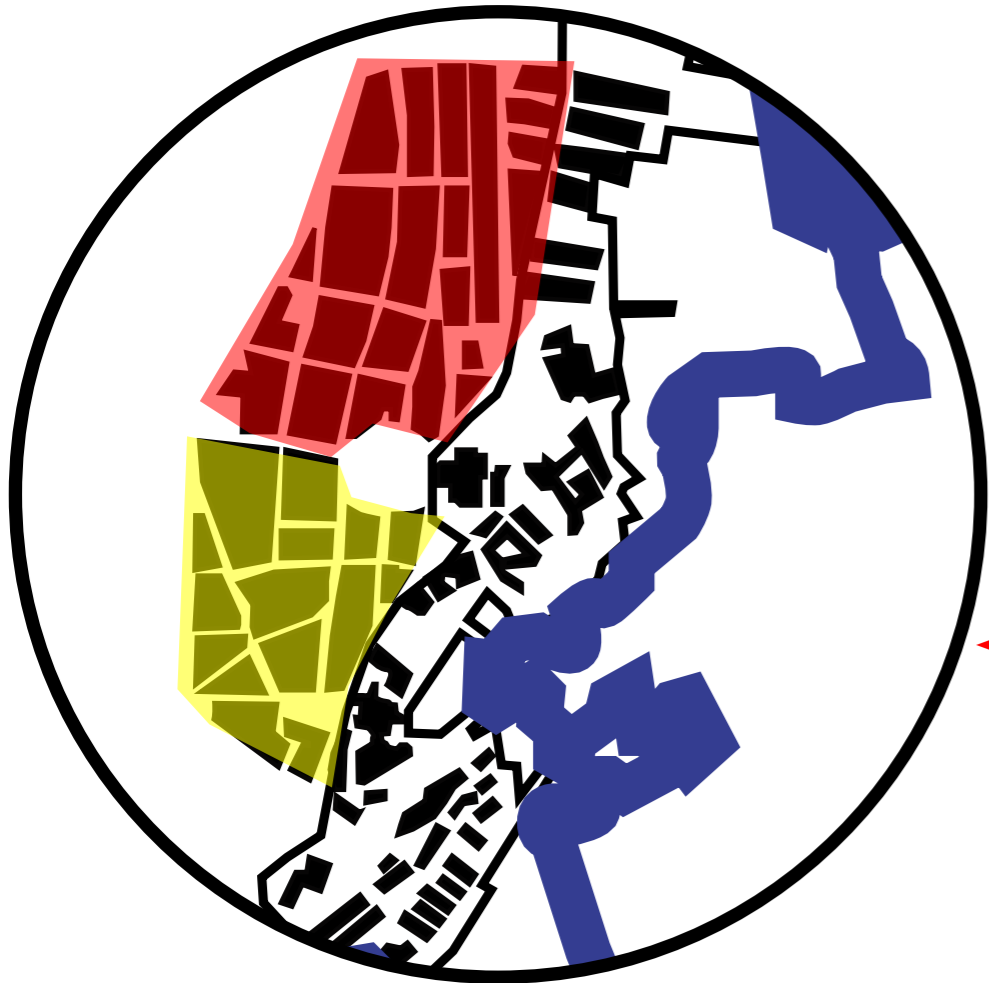


BOMBAY 1720

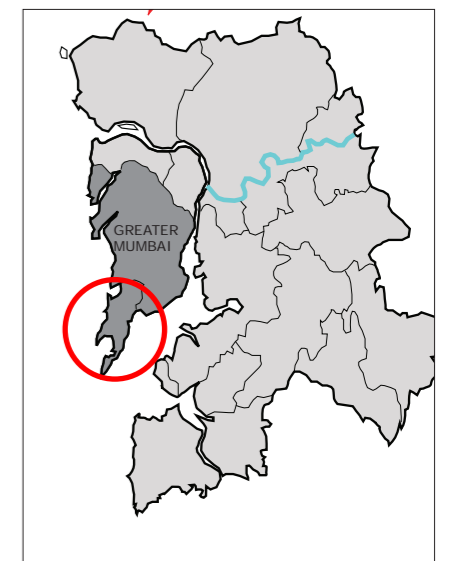
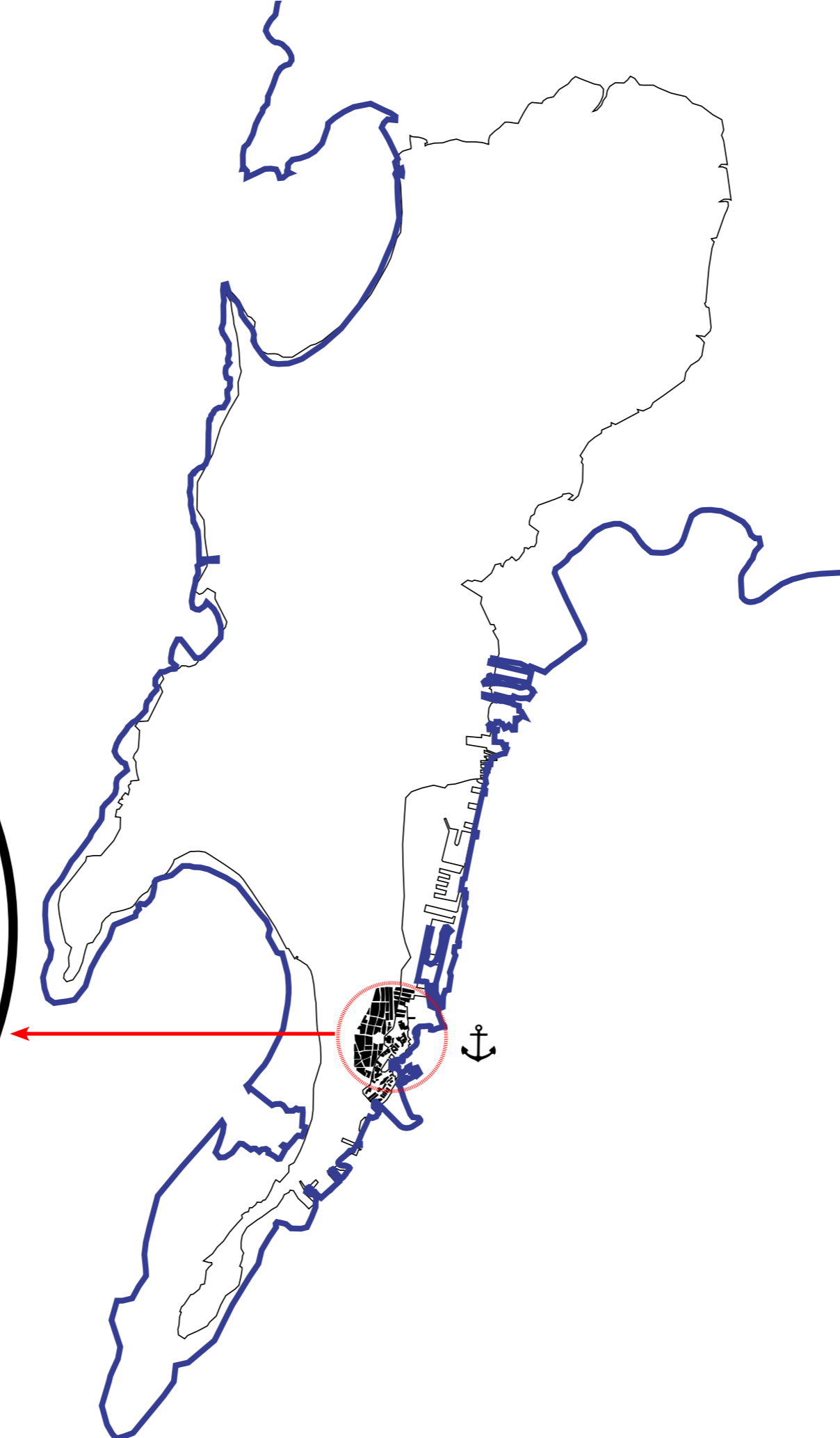
URBAN DEVELOPMENT HISTORY

- Trading town

COMMERCIAL | RESIDENTIAL (INDIAN)
COMMERCIAL | RESIDENTIAL (EUROPEAN)



FORT BOMBAY



BOMBAY 1815

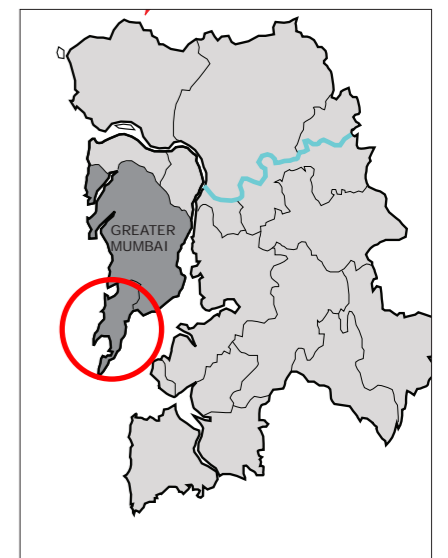
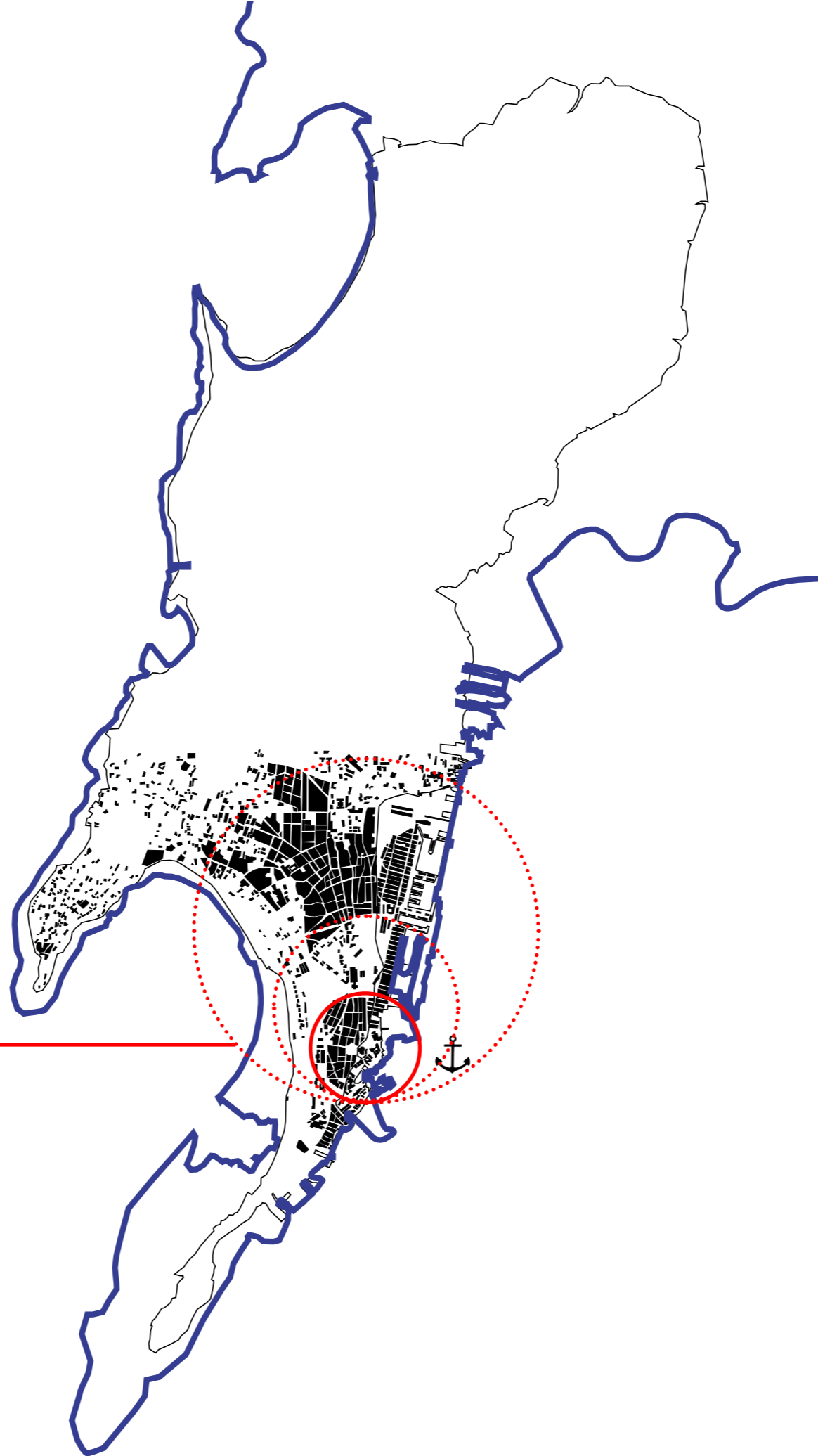
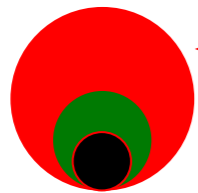
URBAN DEVELOPMENT HISTORY

RESIDENTIAL (INDIAN LOWER CLASS)

GREEN BELT

COMMERCIAL | RESIDENTIAL (INDIAN)
COMMERCIAL | RESIDENTIAL (EUROPEAN)

- Trading town
- Attracted low skill migrants



BOMBAY 1850's

URBAN DEVELOPMENT HISTORY

RESIDENTIAL (INDIAN LOWER CLASS)

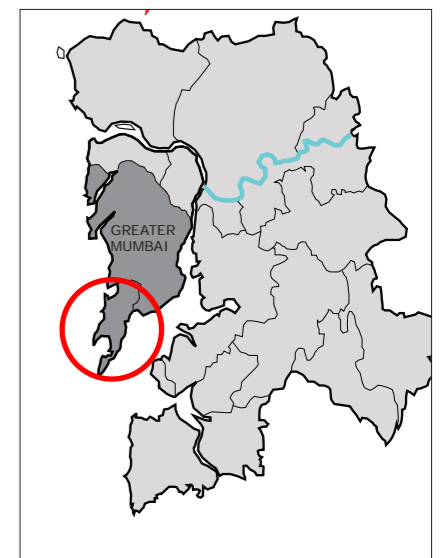
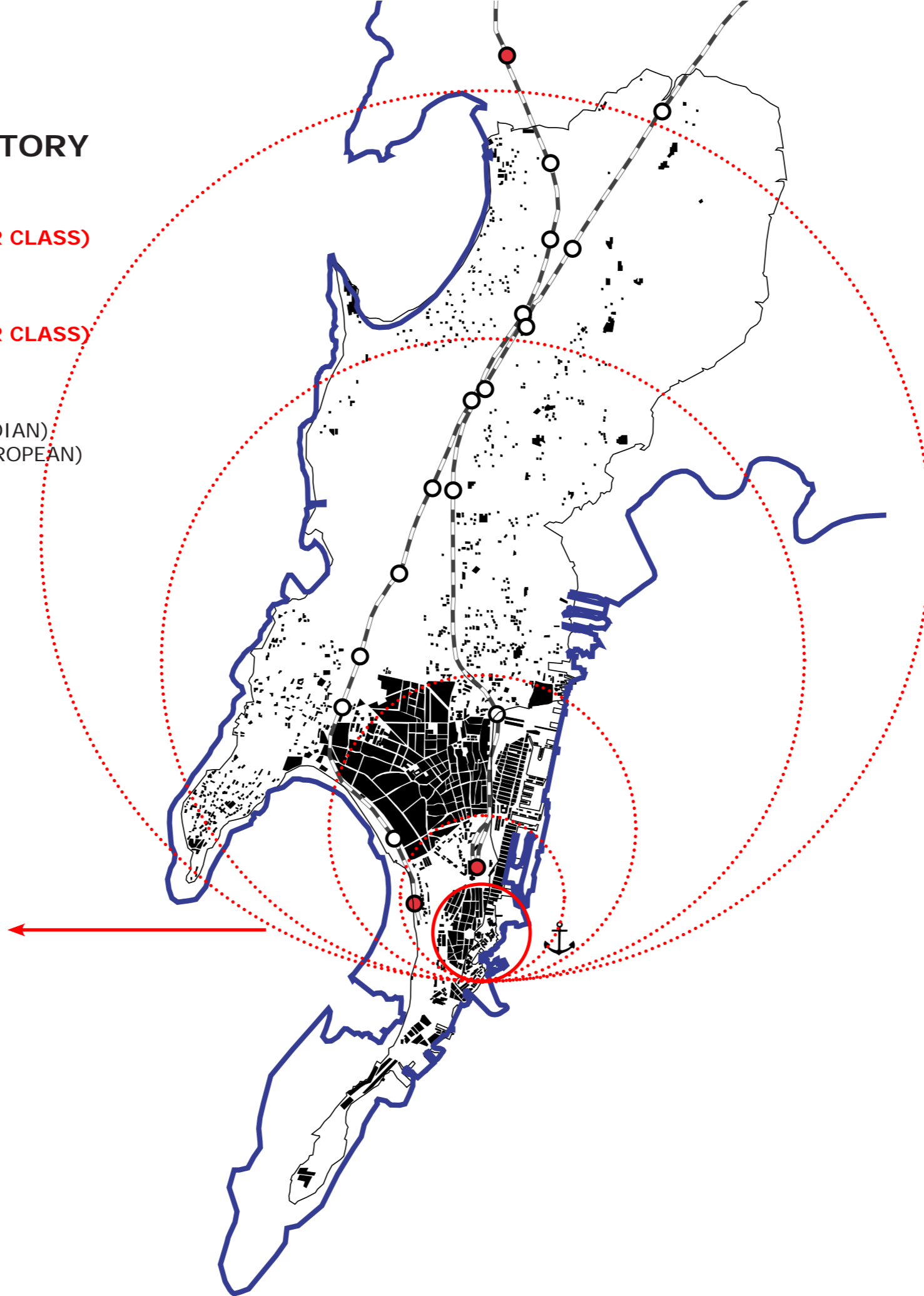
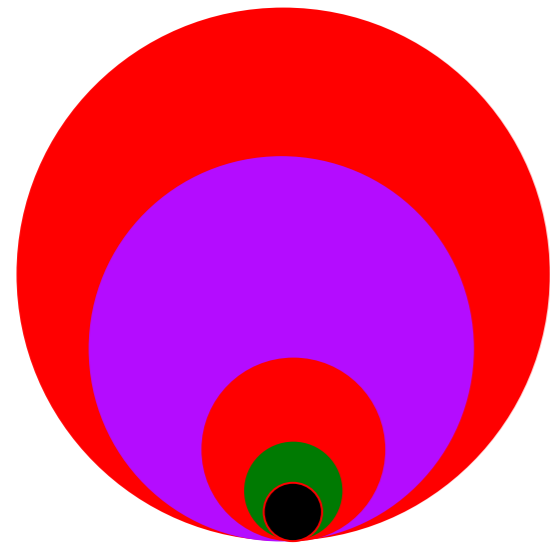
INDUSTRIAL BELT

RESIDENTIAL (INDIAN LOWER CLASS)

GREEN BELT

COMMERCIAL | RESIDENTIAL (INDIAN)
COMMERCIAL | RESIDENTIAL (EUROPEAN)

- Trading town
- Attracted low skill migrants
- Railways
- Textile Industries
- More migration to the city



BOMBAY 1954

URBAN DEVELOPMENT HISTORY

RESIDENTIAL (INDIAN LOWER CLASS)

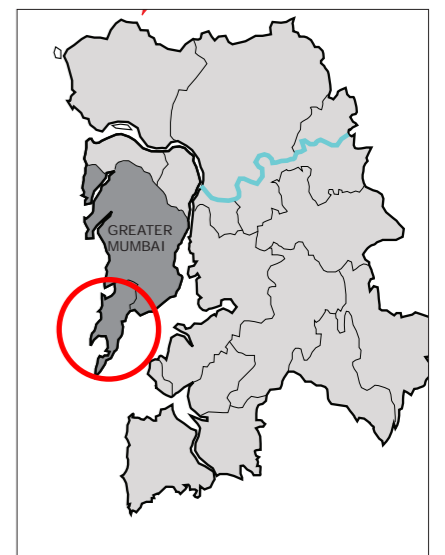
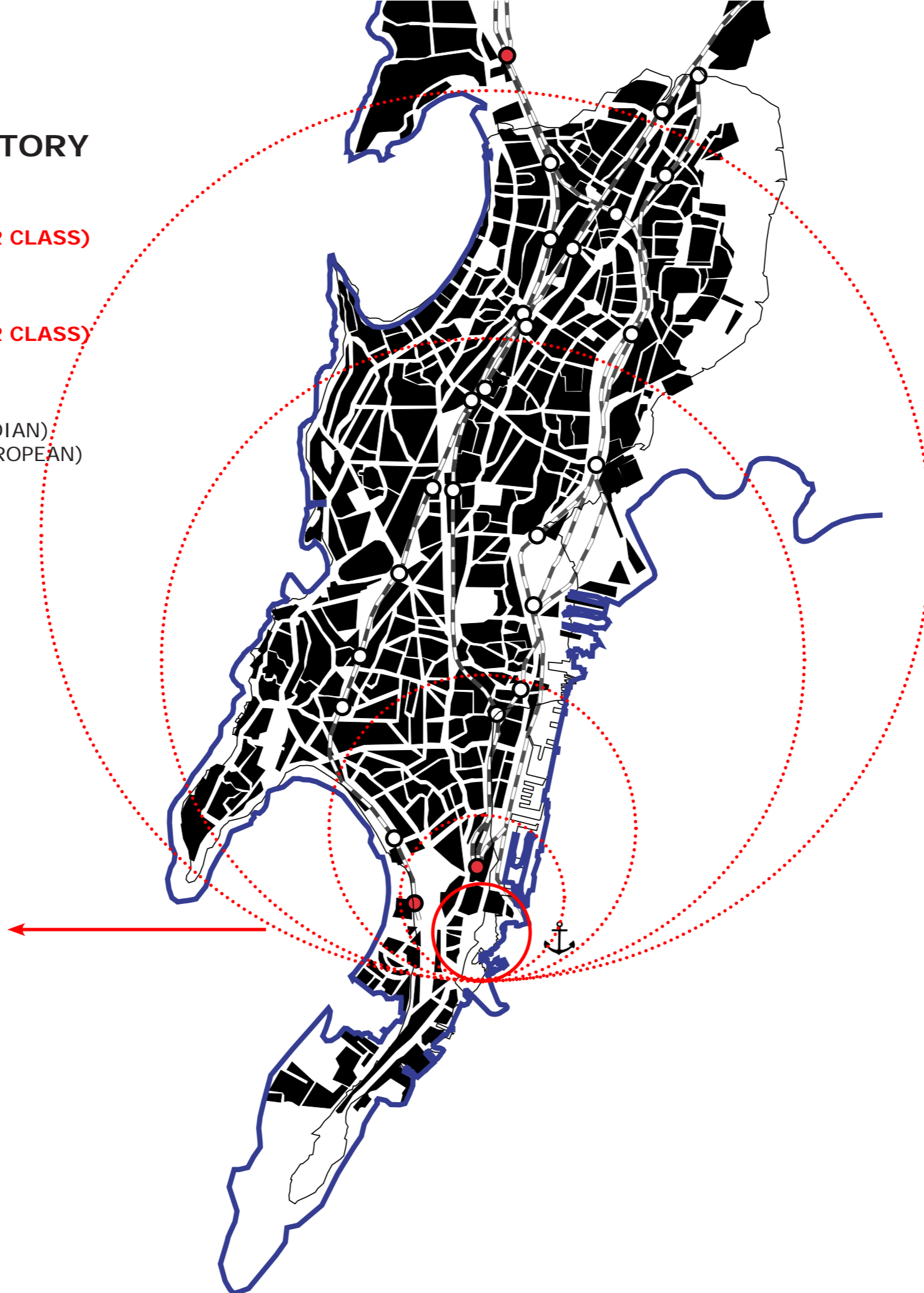
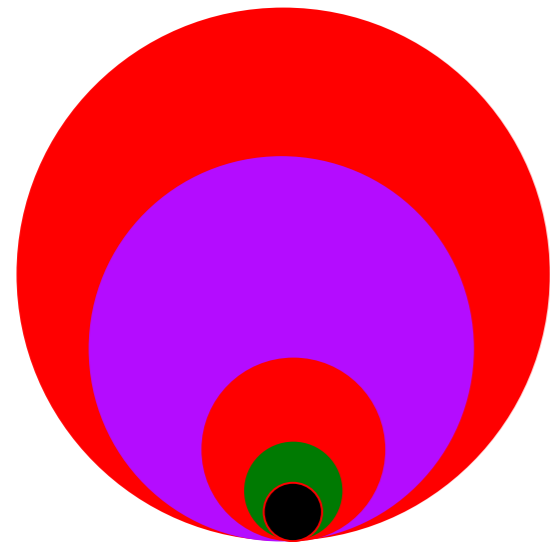
INDUSTRIAL BELT

RESIDENTIAL (INDIAN LOWER CLASS)

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COMMERCIAL | RESIDENTIAL (EUROPEAN)

- Trading town
- Attracted low skill migrants
- Railways
- Textile Industries
- More migration to the city
- More urbannisation



BOMBAY 1954

URBAN DEVELOPMENT HISTORY

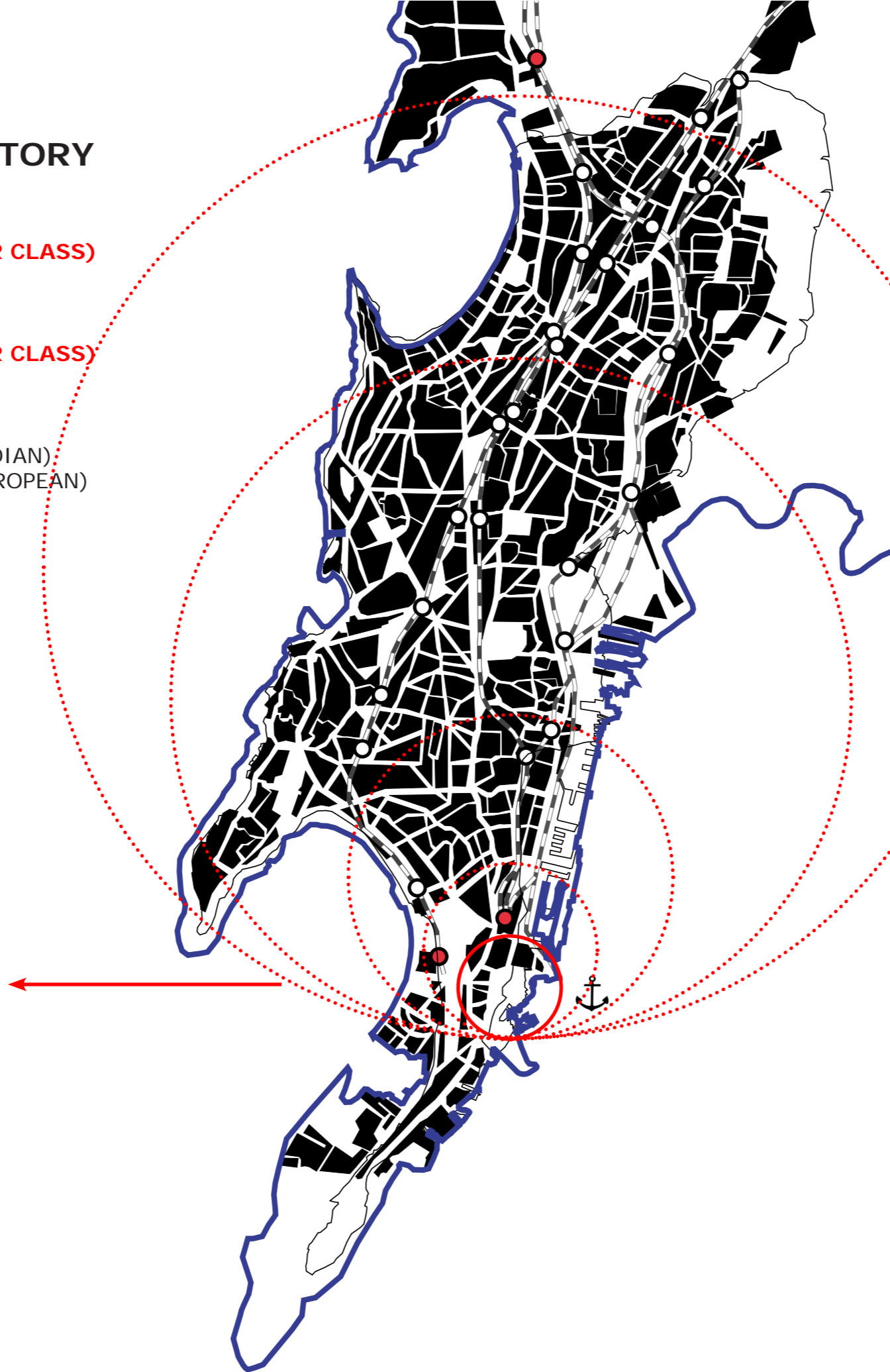
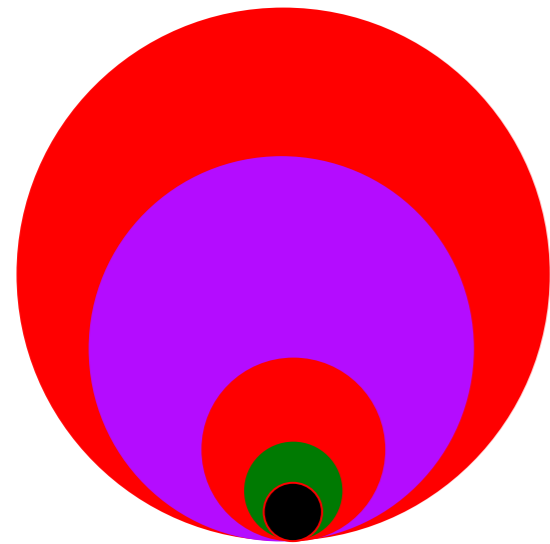
RESIDENTIAL (INDIAN LOWER CLASS)

INDUSTRIAL BELT

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GREEN BELT

COMMERCIAL | RESIDENTIAL (INDIAN)
COMMERCIAL | RESIDENTIAL (EUROPEAN)



BANDRA KURLA
COMPLEX (CBD)

SLUMS OF
DHARAVI

DERELICT INDUS-
TRIAL MILL SITES

STREET MARKETS OF
BHULESHWAR

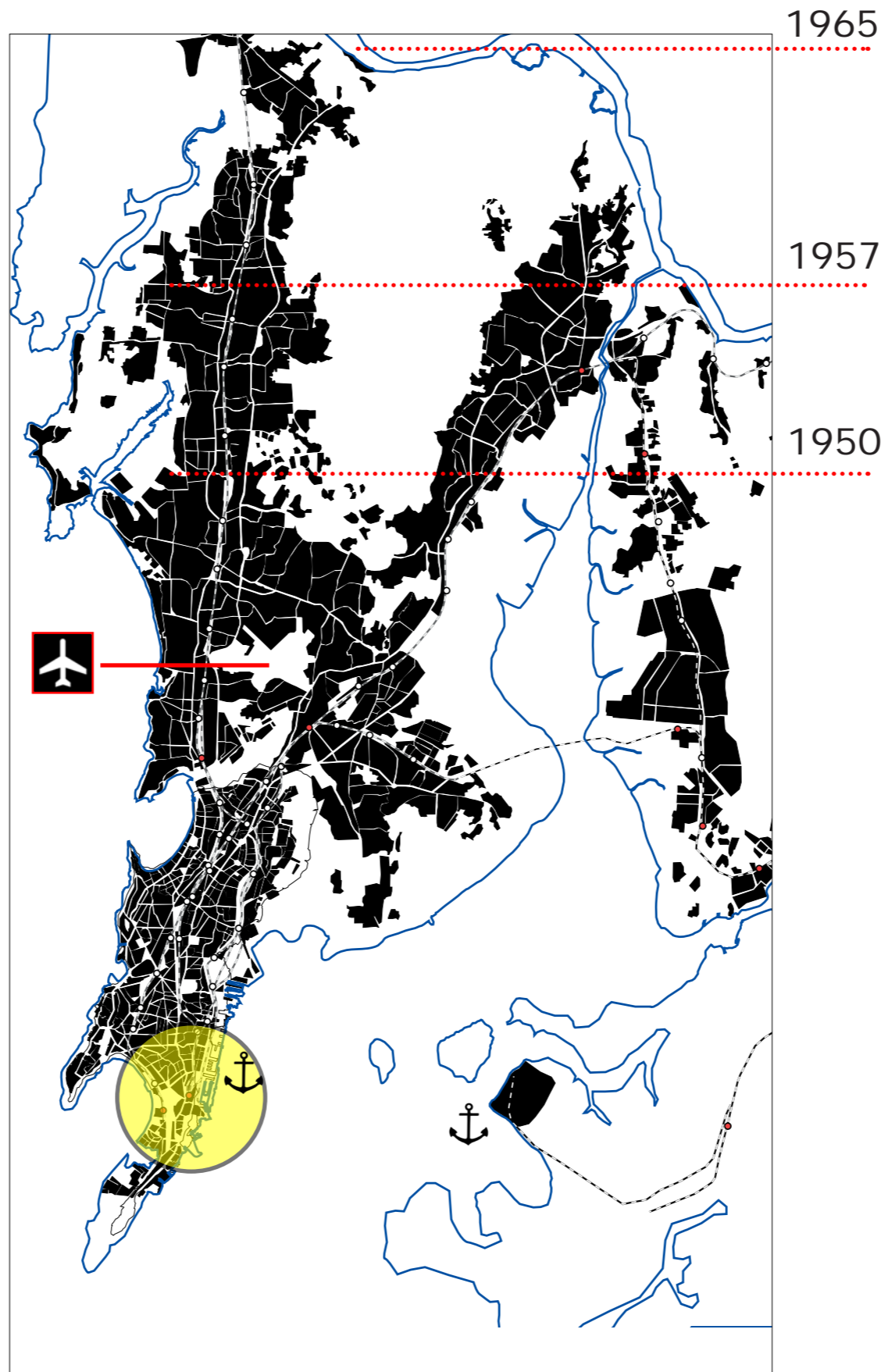
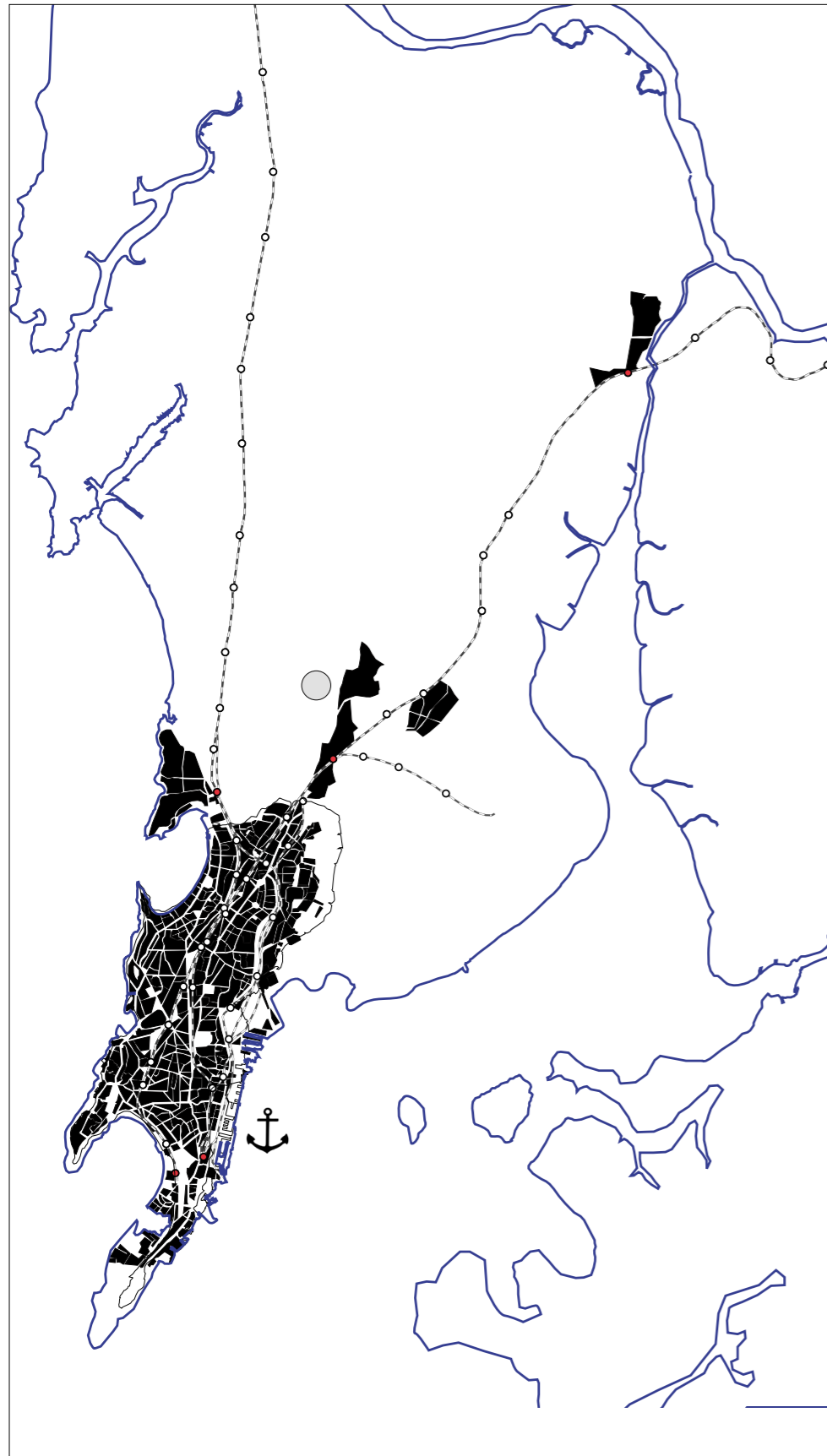
HISTORICAL
CBD



0 km 1 km 2 km

BOMBAY 1950's-1965

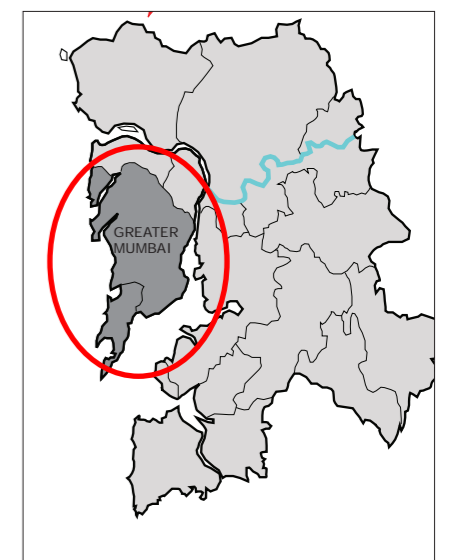
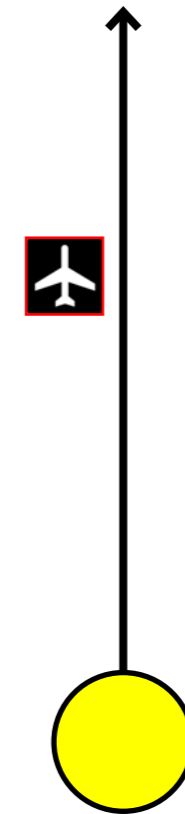
URBAN DEVELOPMENT HISTORY



- Extn of city limits to North

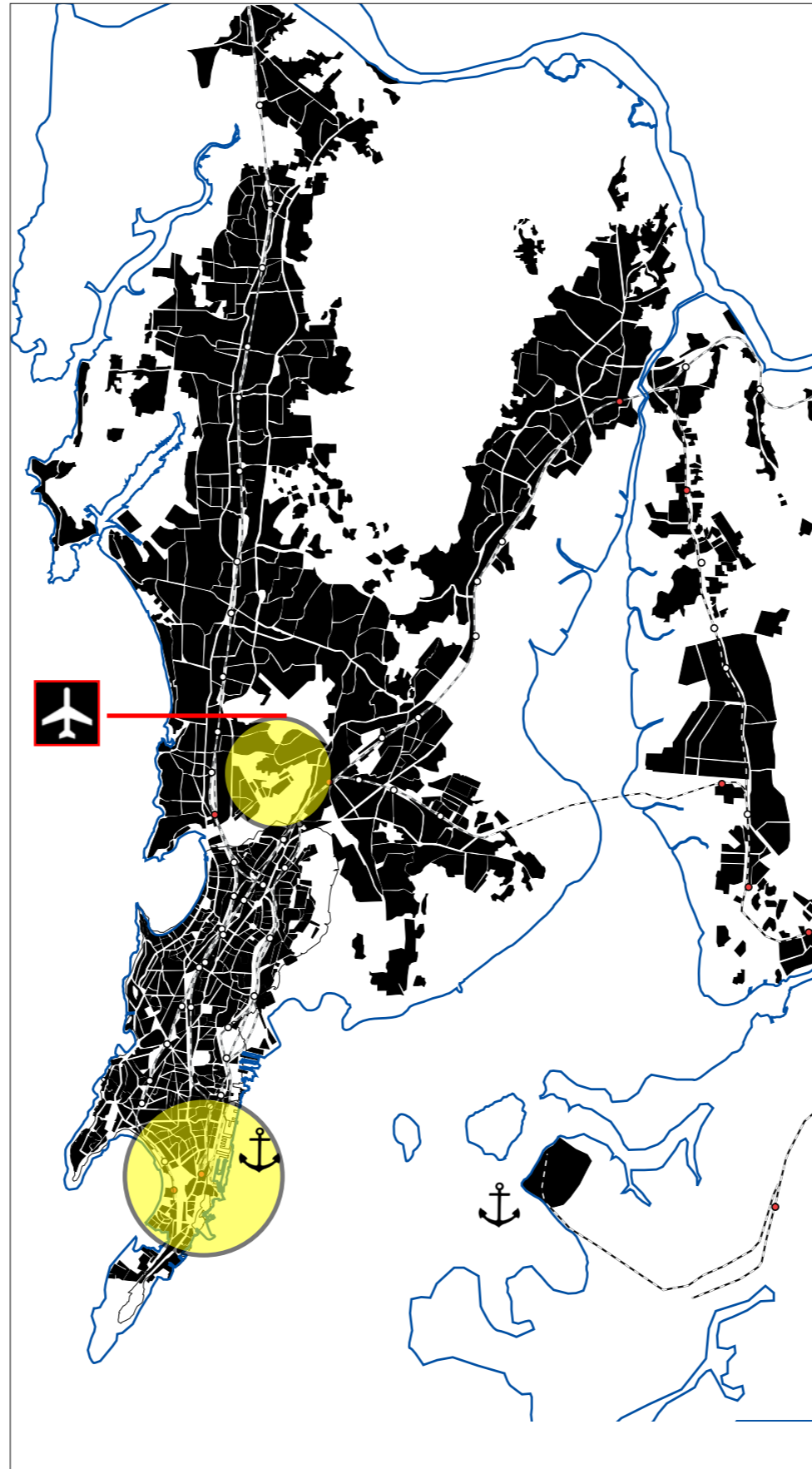
- **PROBLEM**

Congestion on N-S axis



BOMBAY 1972

URBAN DEVELOPMENT HISTORY



- Extn of city limits to North

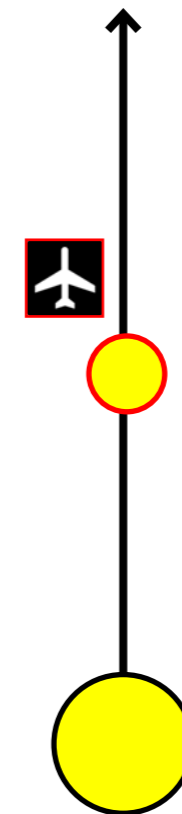
- **PROBLEM**

Congestion on N-S axis

- **Government Plans** 1972

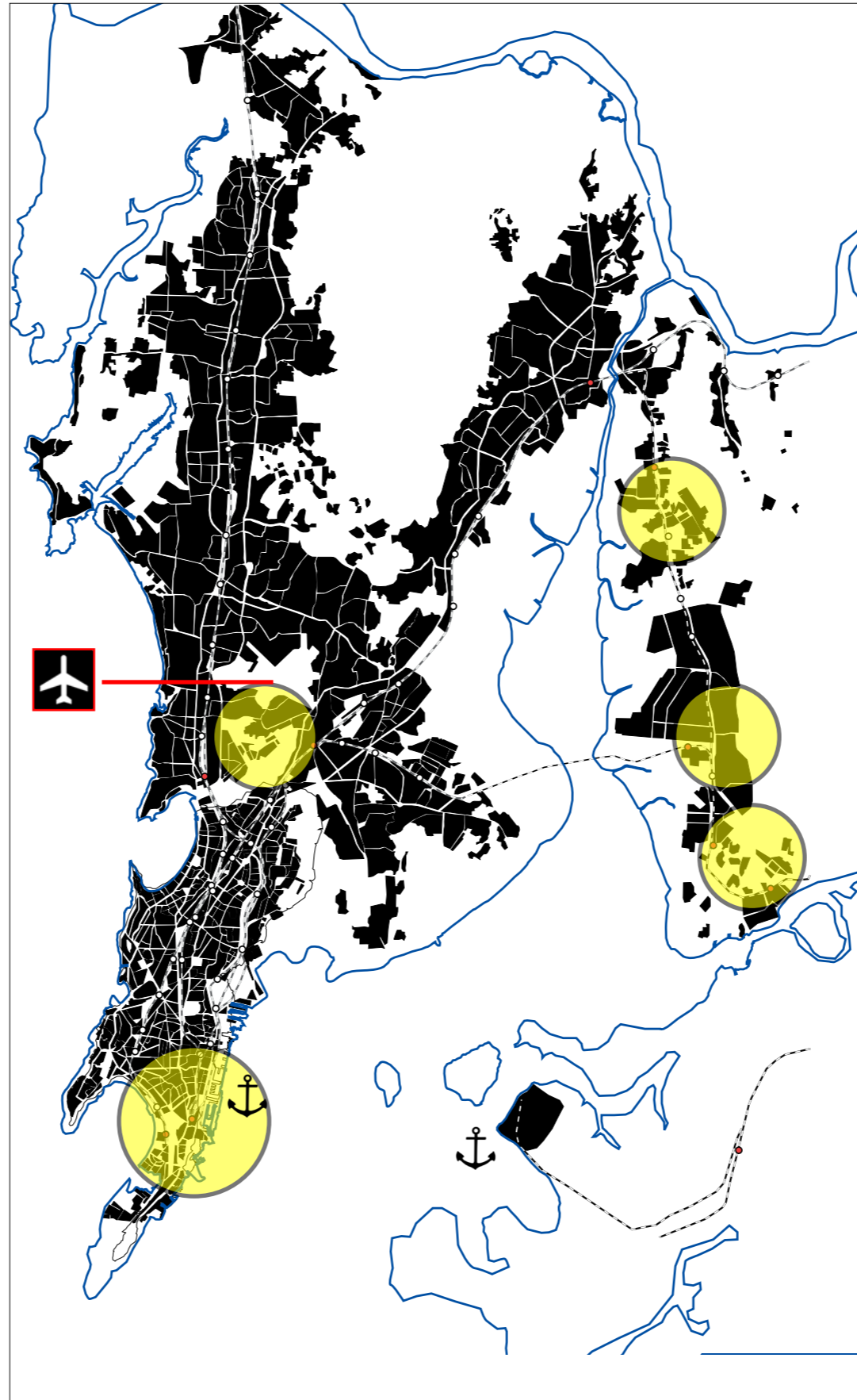
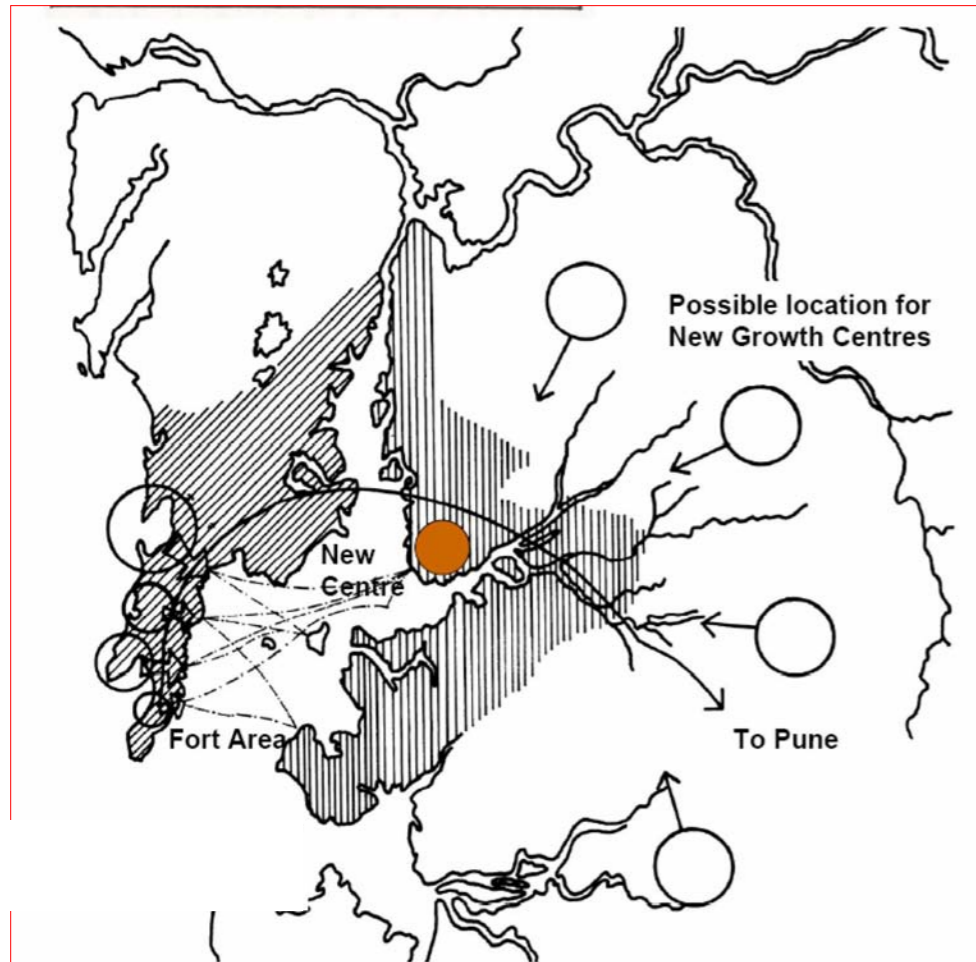
BKC business district

New city Navi Mumbai (E)



MUMBAI 2001

URBAN DEVELOPMENT HISTORY



- Extn of city limits to North

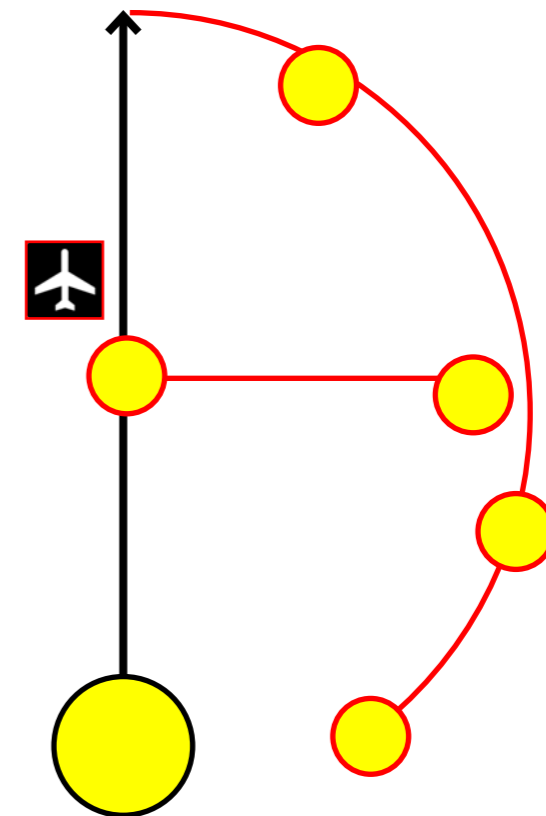
- **PROBLEM**

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BKC business district

New city Navi Mumbai (E)

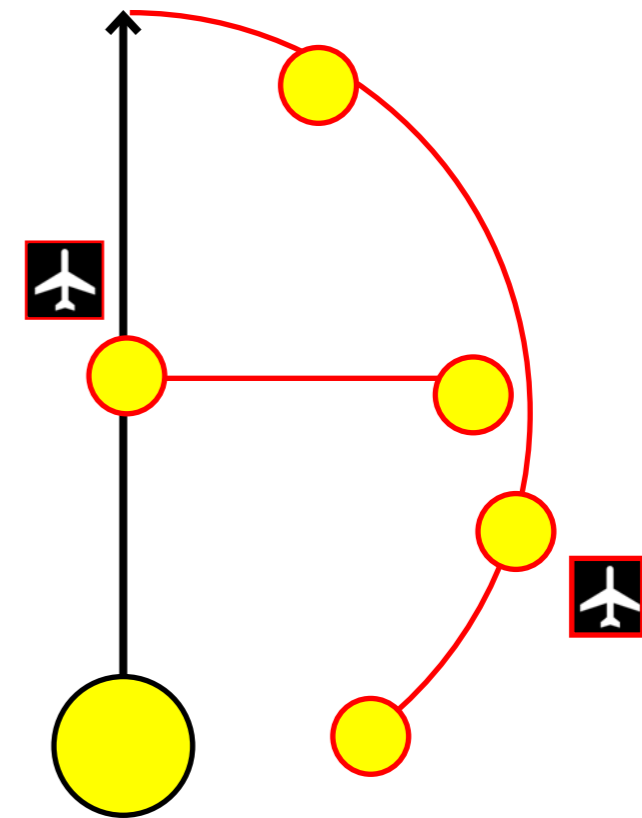
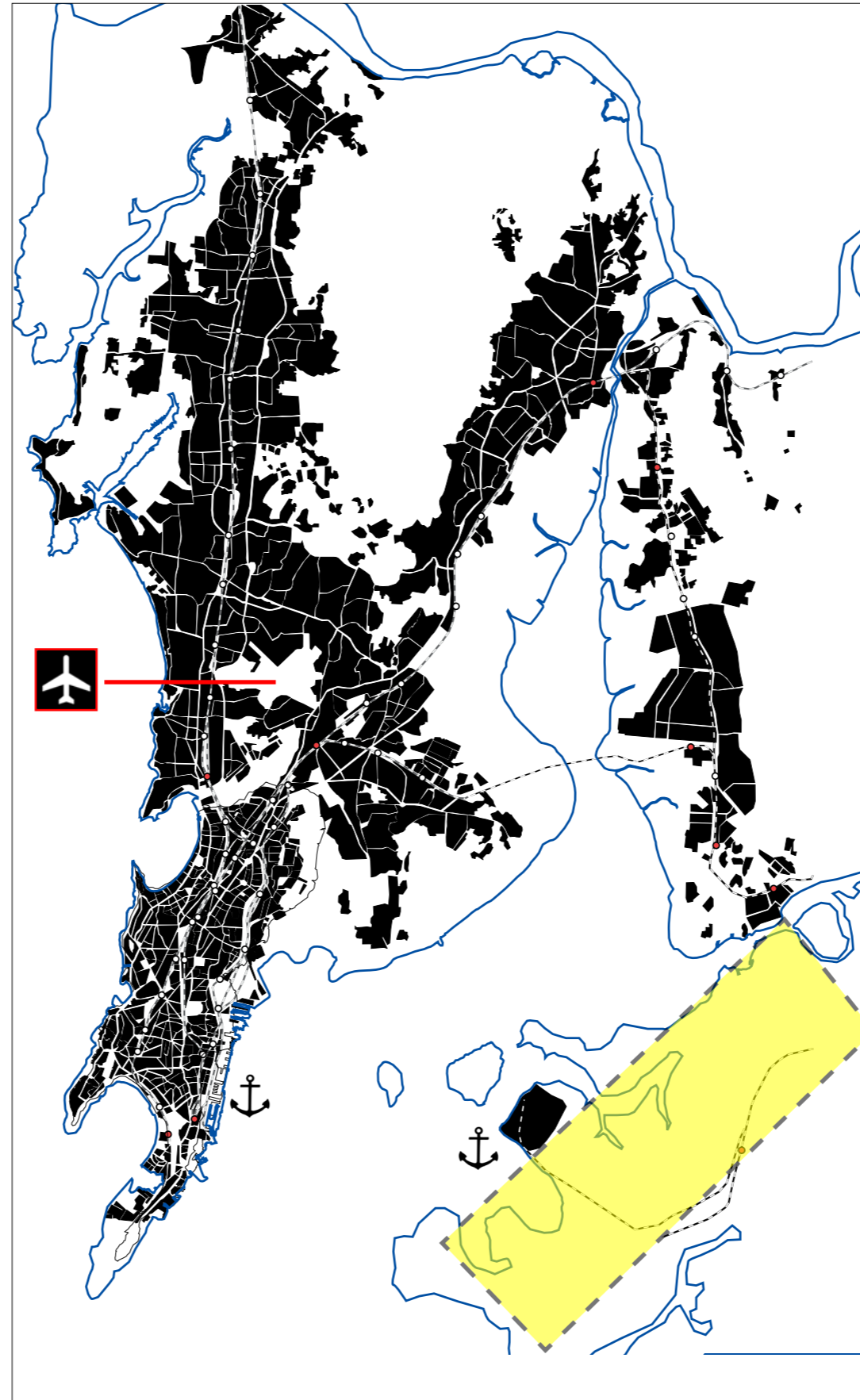
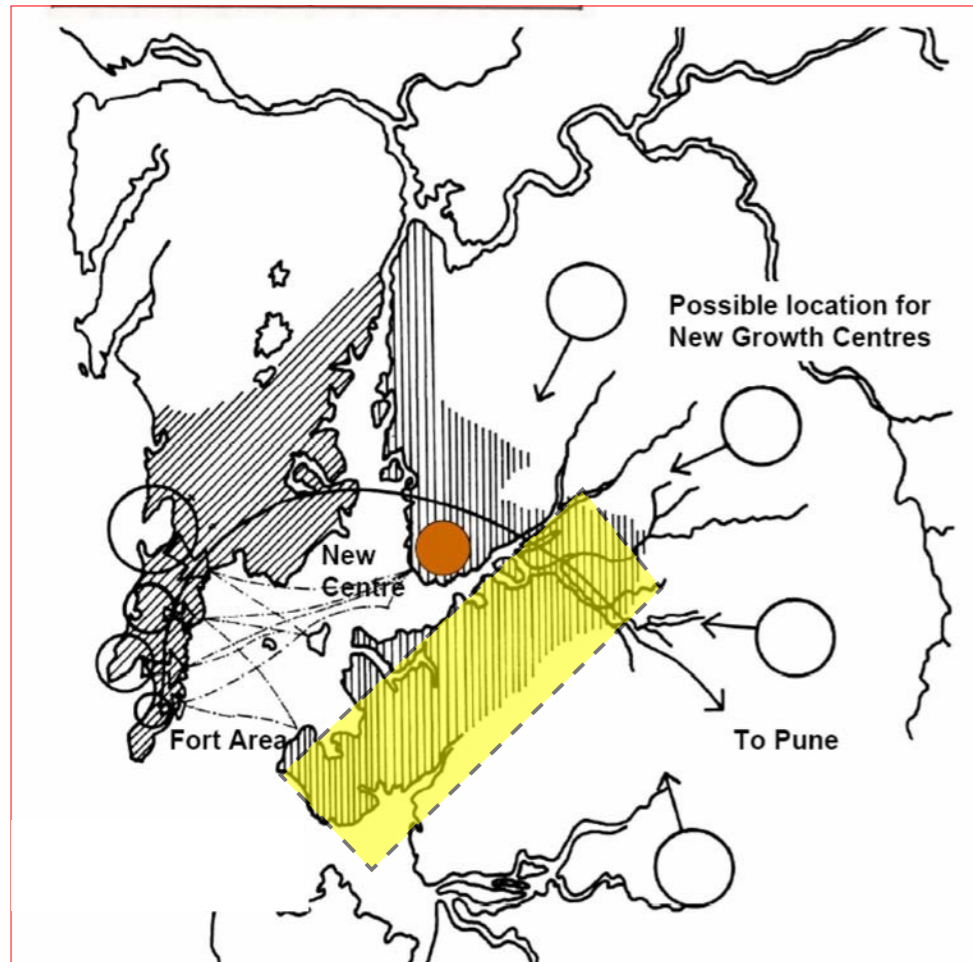


MUMBAI 2001+

URBAN DEVELOPMENT HISTORY

Under **planning** stages:

Development of South Navi Mumbai
New international airport at Panvel



MUMBAI 2001+

URBAN DEVELOPMENT HISTORY

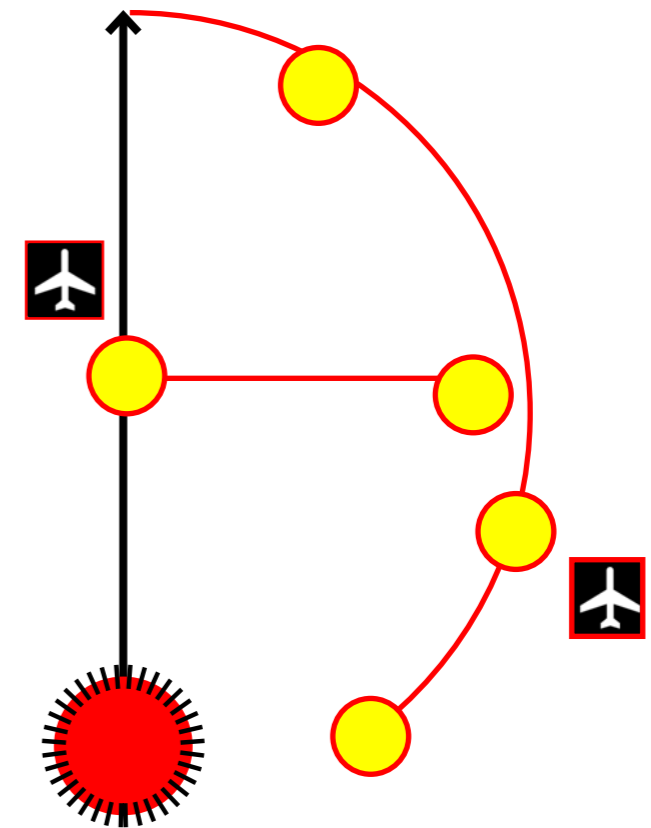
ambitions

Space & Infrastructure for only global businesses and **higher order services** to operate

outcome

Dominant economic centre
+ **smaller sub-centres**

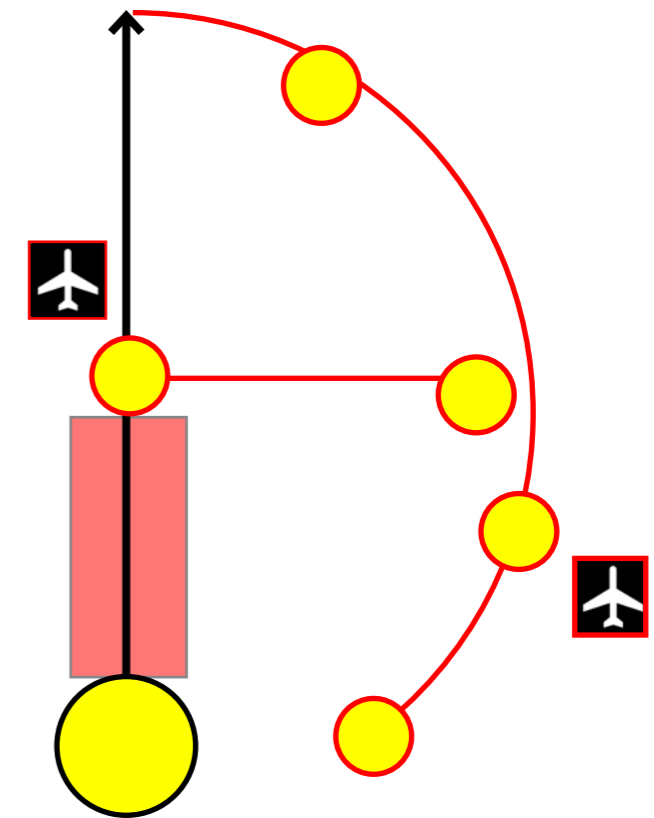
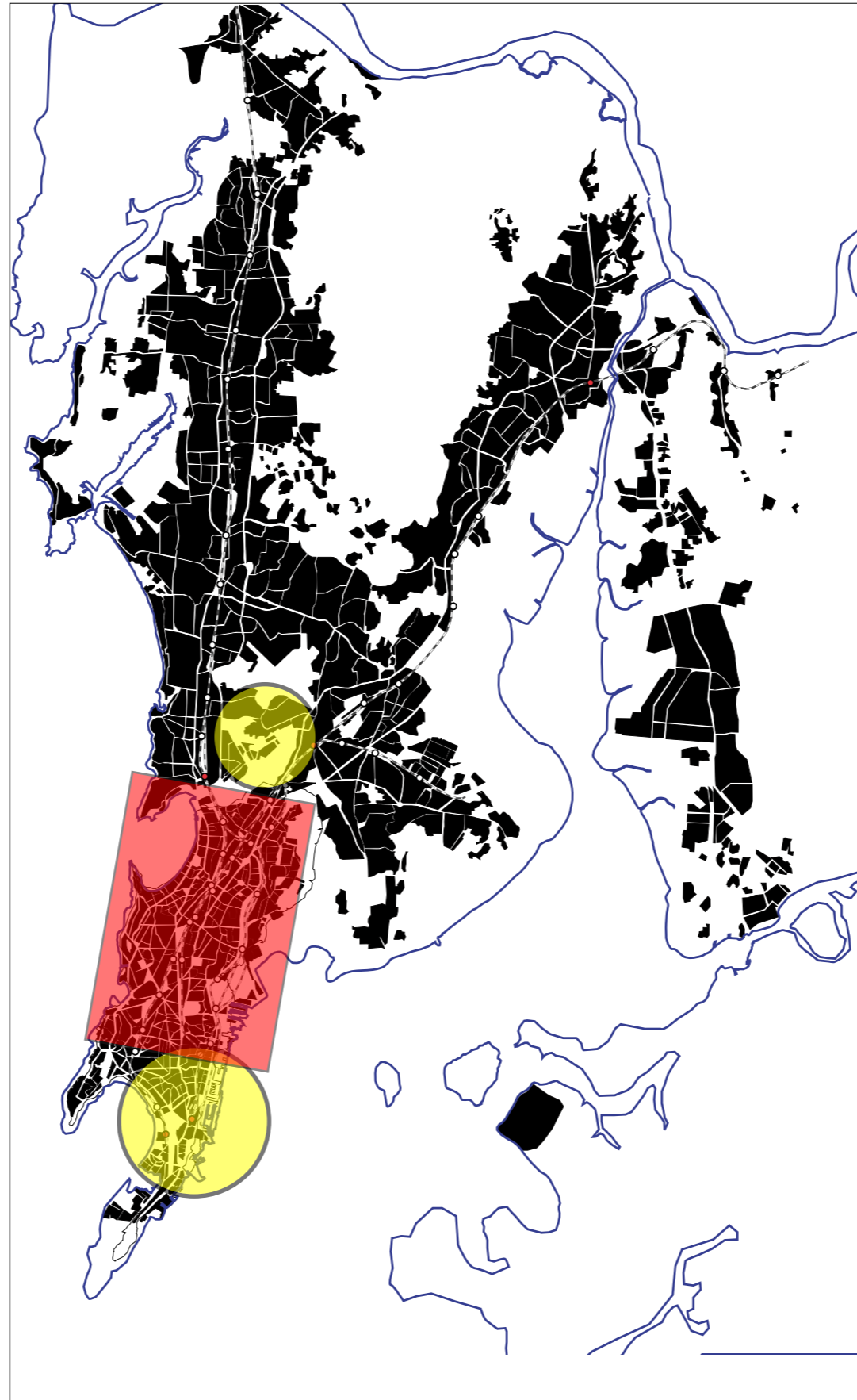
Declining port functions in historical CBD



MUMBAI 2001+

...

Urban fabric between the 2 business districts stands **threatened** because of its strategic position.



URBAN DEVELOPMENT HISTORY



URBAN FRAGMENTS

SPATIAL STRUCTURE

Dharavi Slums



Derelict Mill Sites



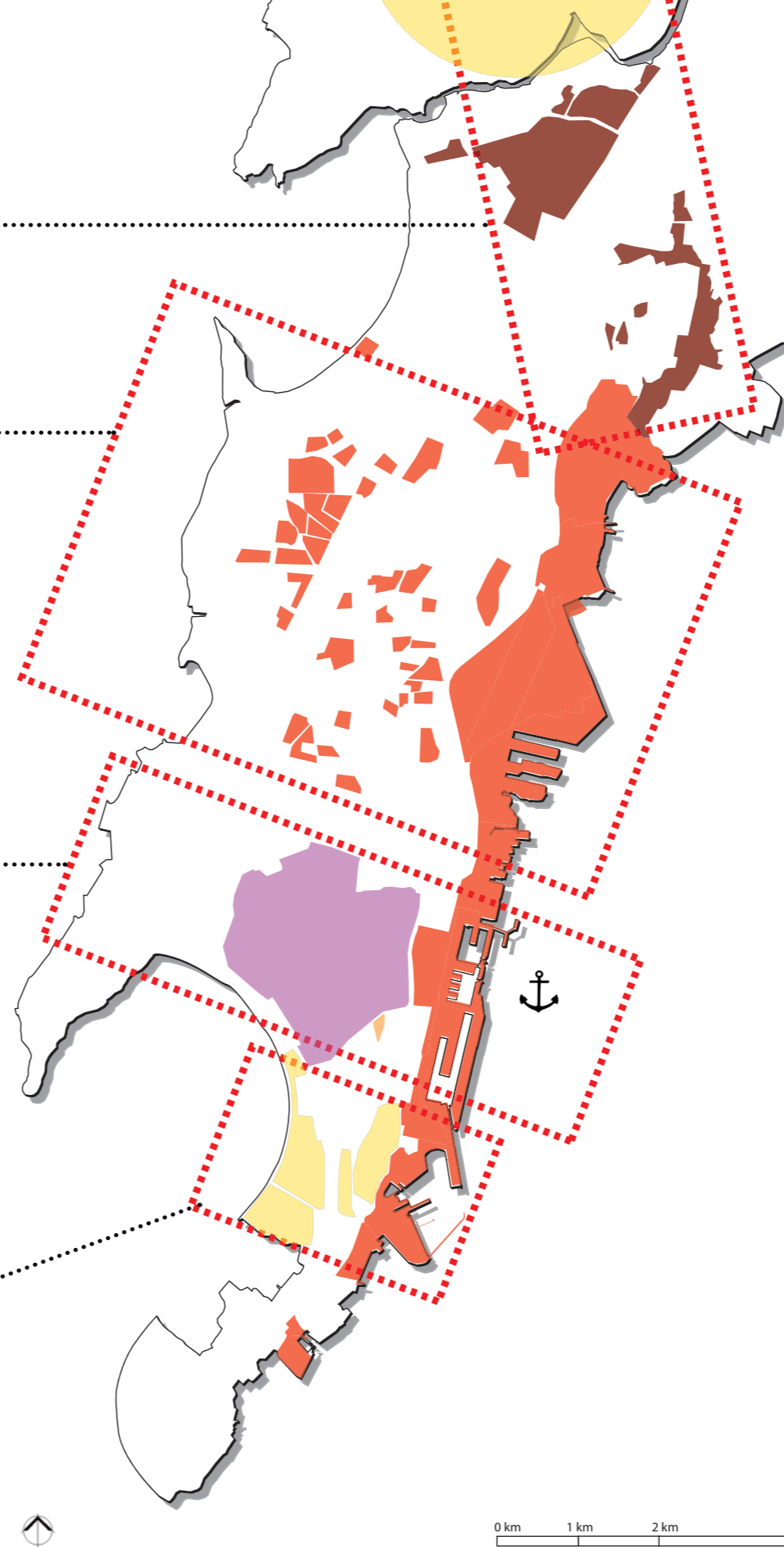
Street Markets of Bhuleshwar



Historic City

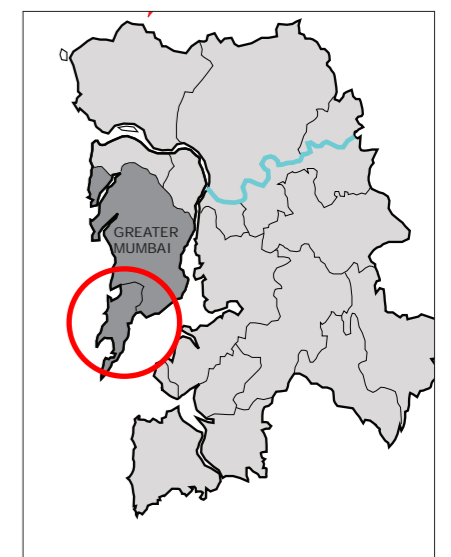


Nariman Point CBD



PROBLEM

- Derelict industrial sites
- Urban fabric b/w business districts stands threatenend



changing economies

DYNAMISM

RAILWAYS

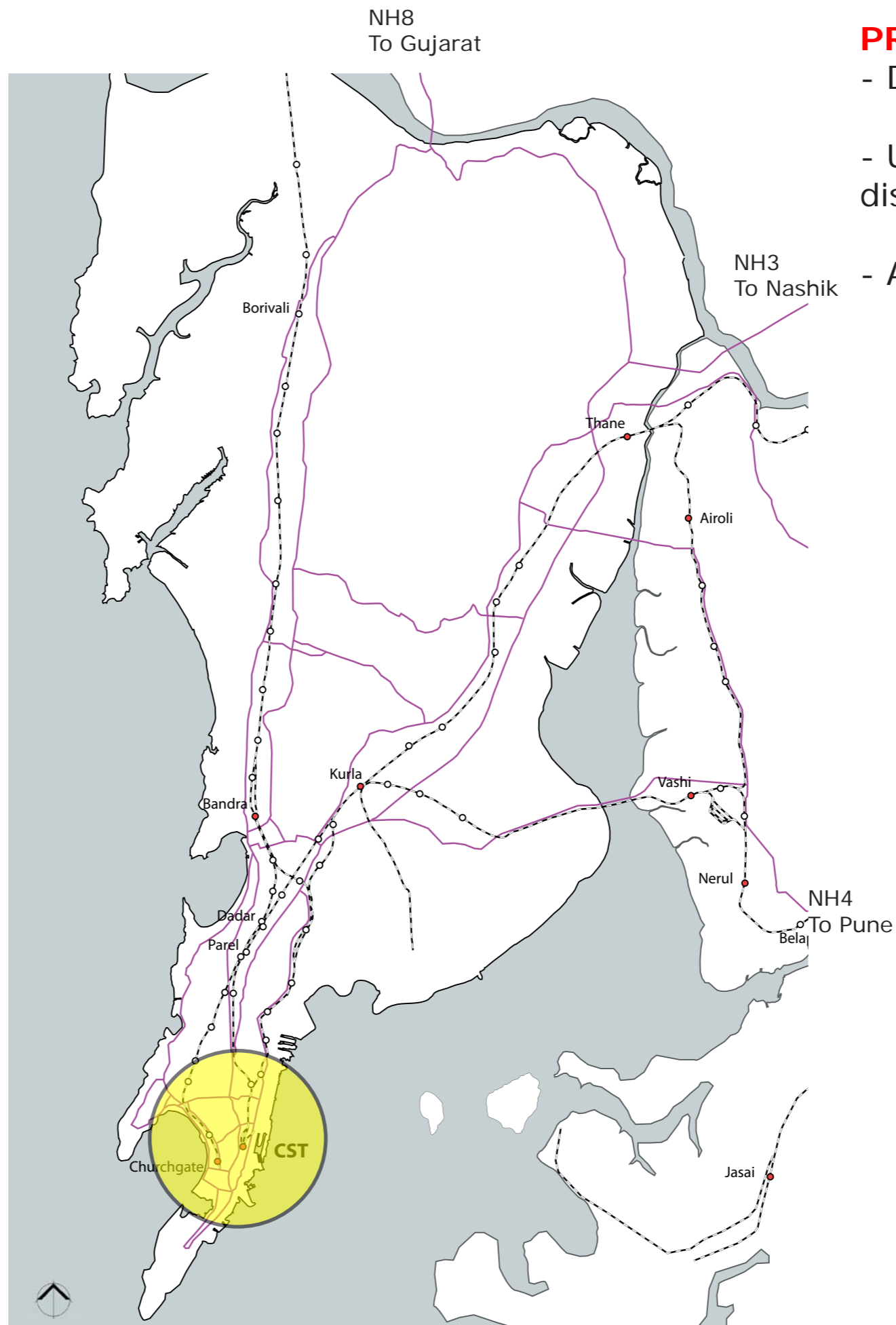
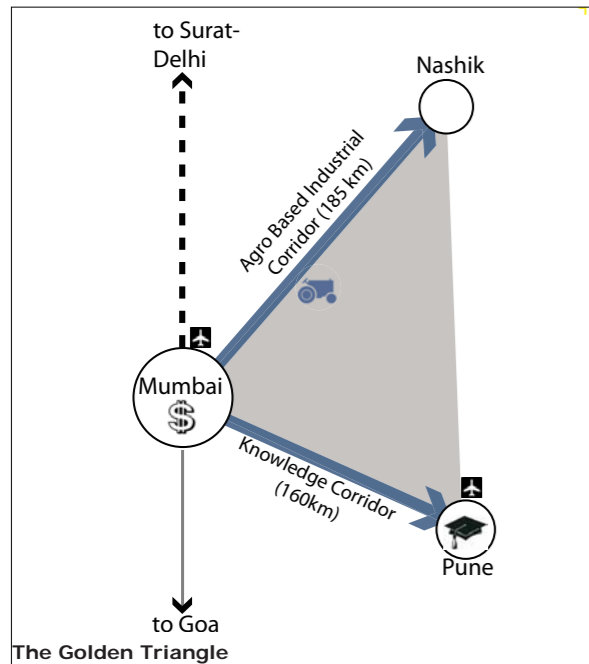
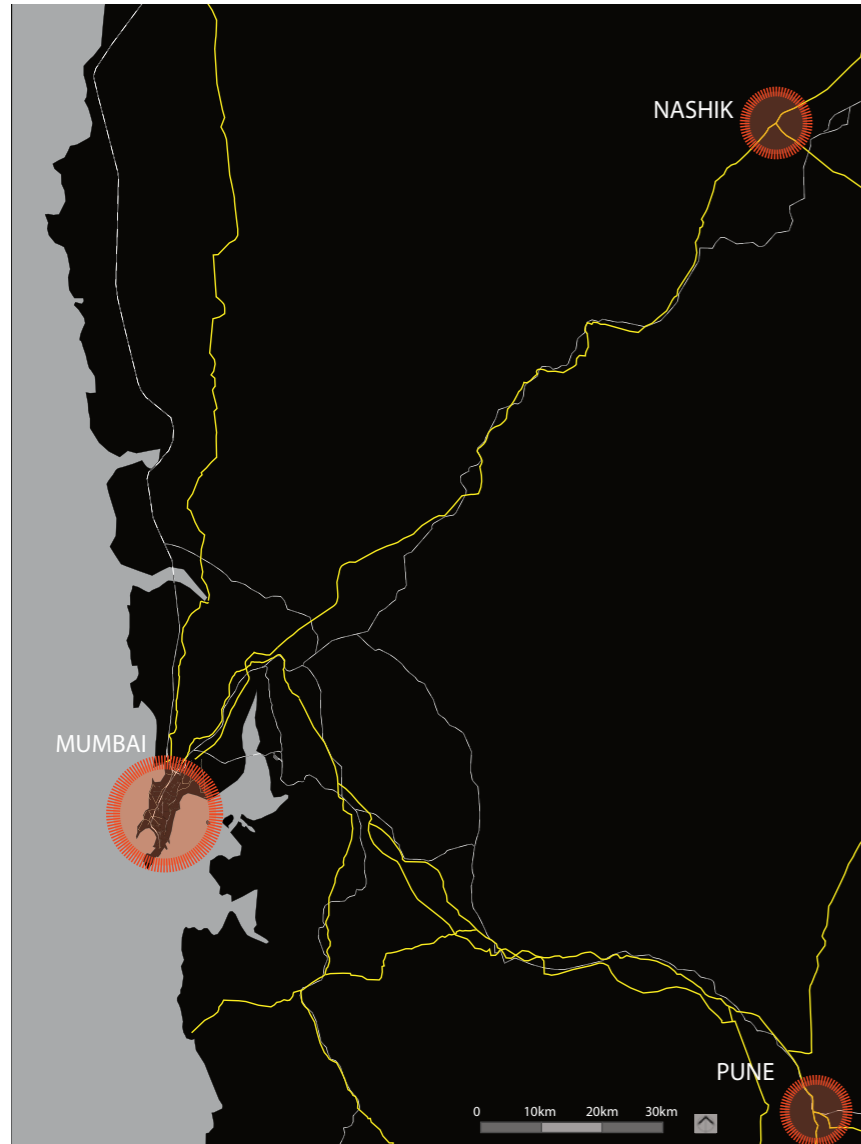
6.6 Million of the 11.9 Million population commute using the railways on a daily basis.

90% of Mumbai's motorized commuters use public transport to commute.



LINEAR CITY

INFRASTRUCTURE

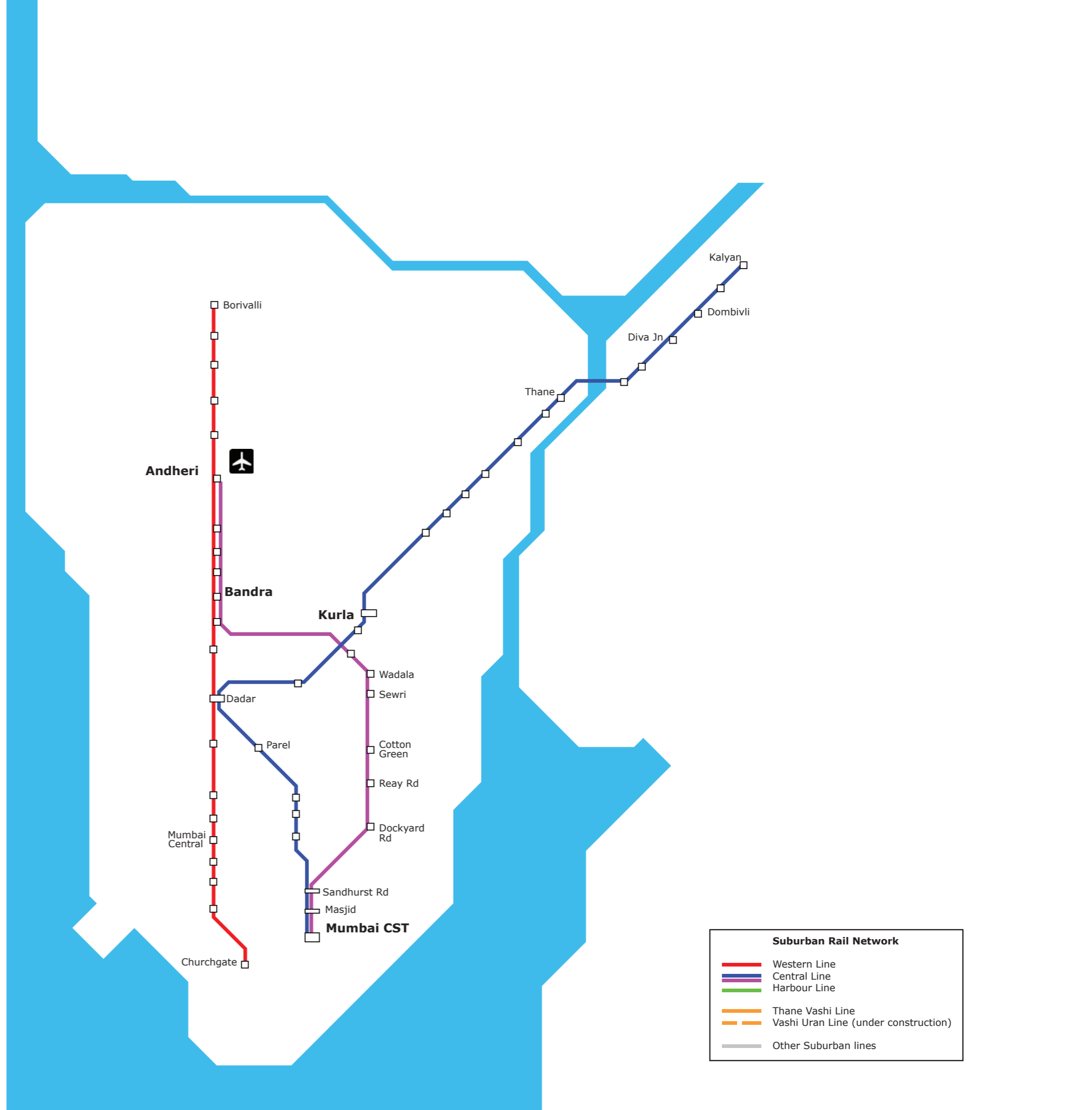
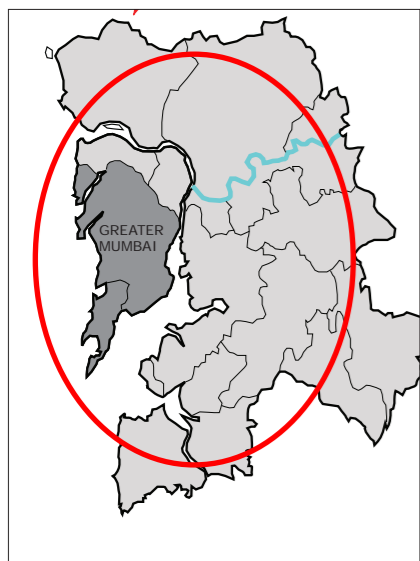


PROBLEM

- Derelict industrial sites
- Urban fabric b/w business districts stands threatenend
- Accessibility to CBD

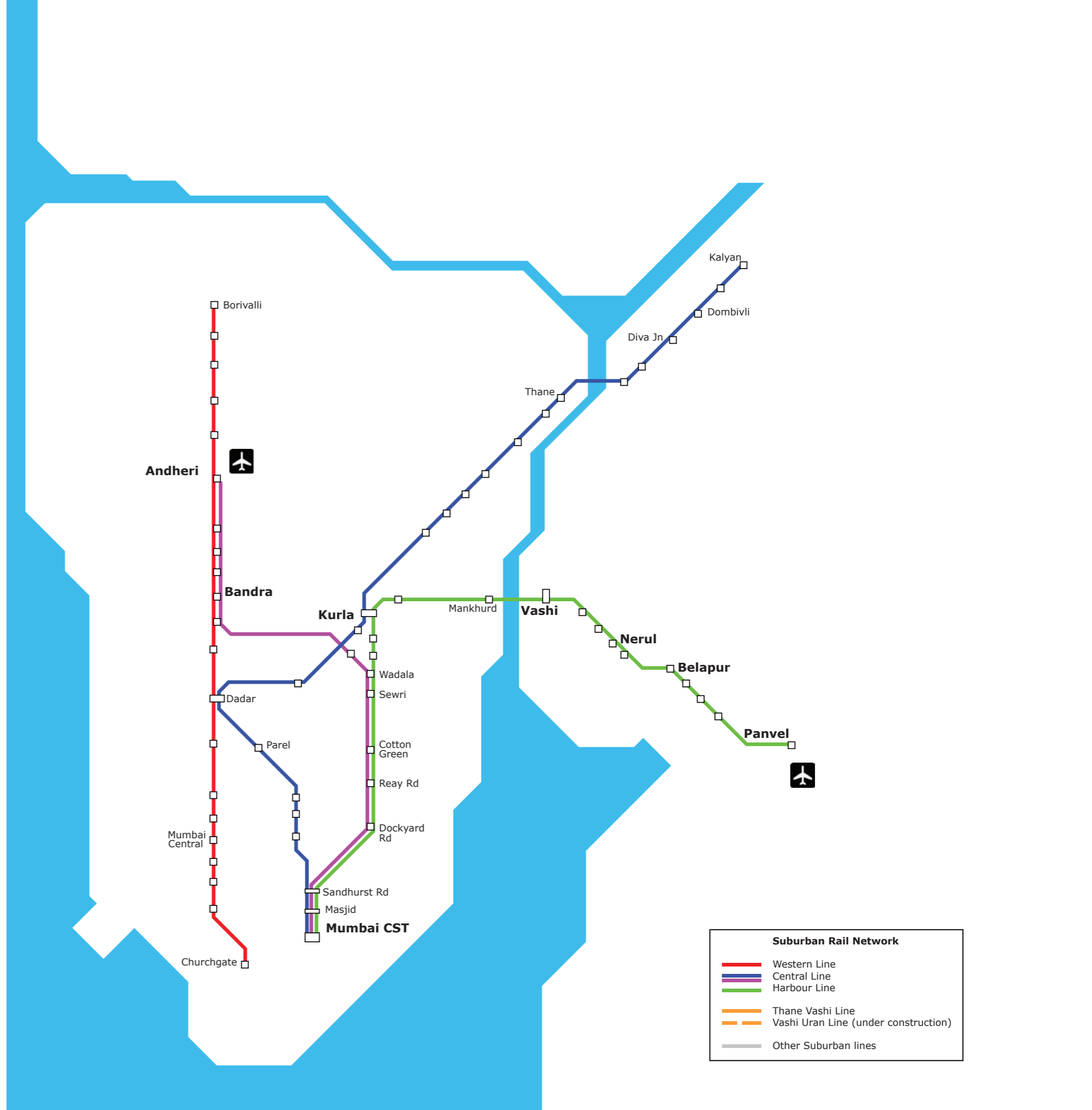
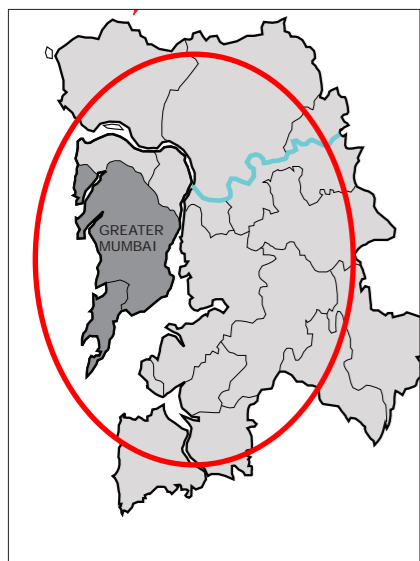


Western Railways
Central Railways



Suburban Rail Network	
	Western Line
	Central Line
	Harbour Line
	Thane Vashi Line
	Vashi Uran Line (under construction)
	Other Suburban lines

Western Railways
 Central Railways
 Harbour Line

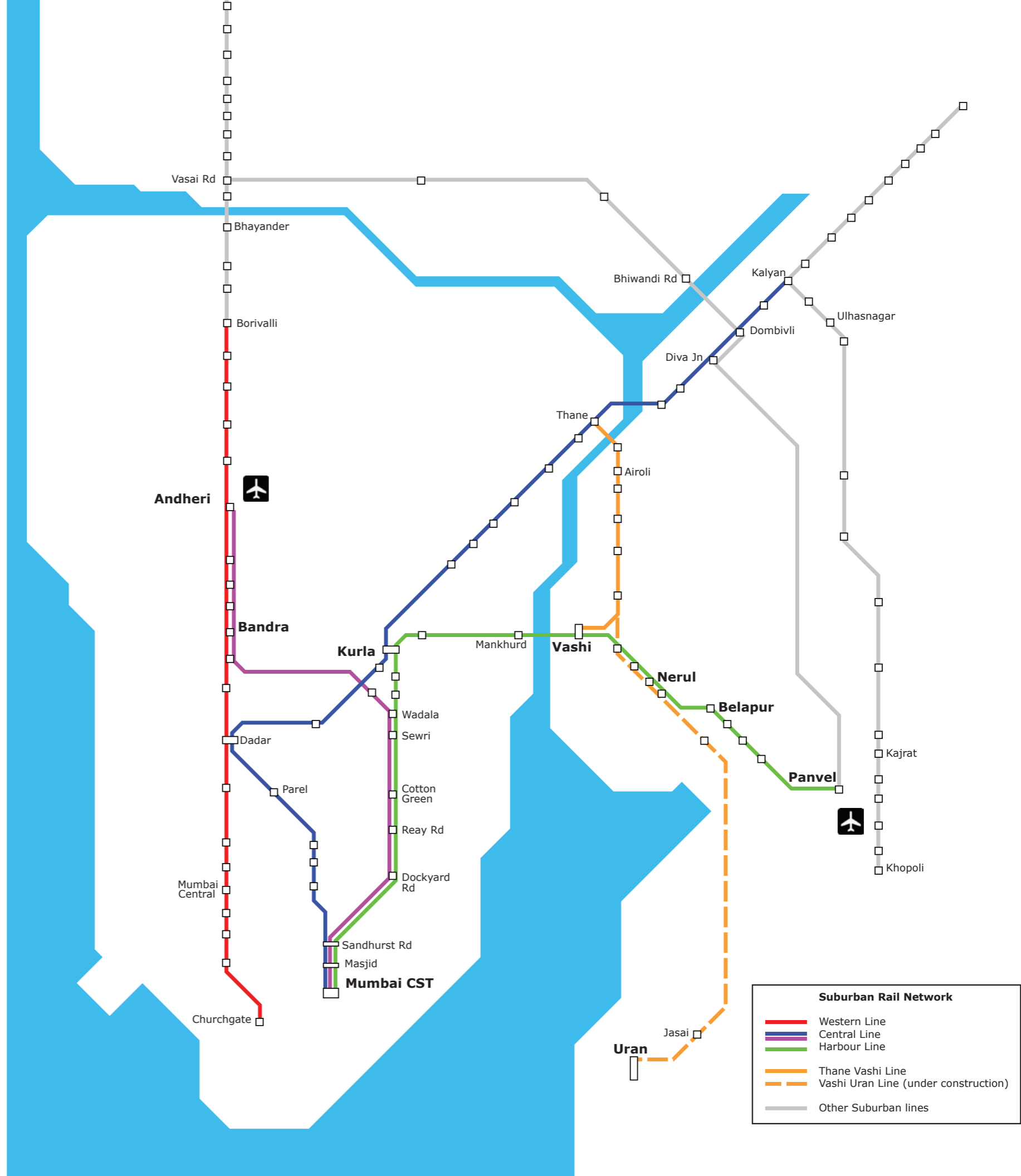
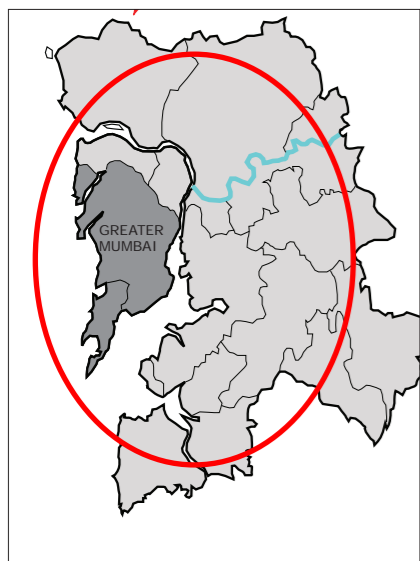


Suburban Rail Network	
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—	Other Suburban lines

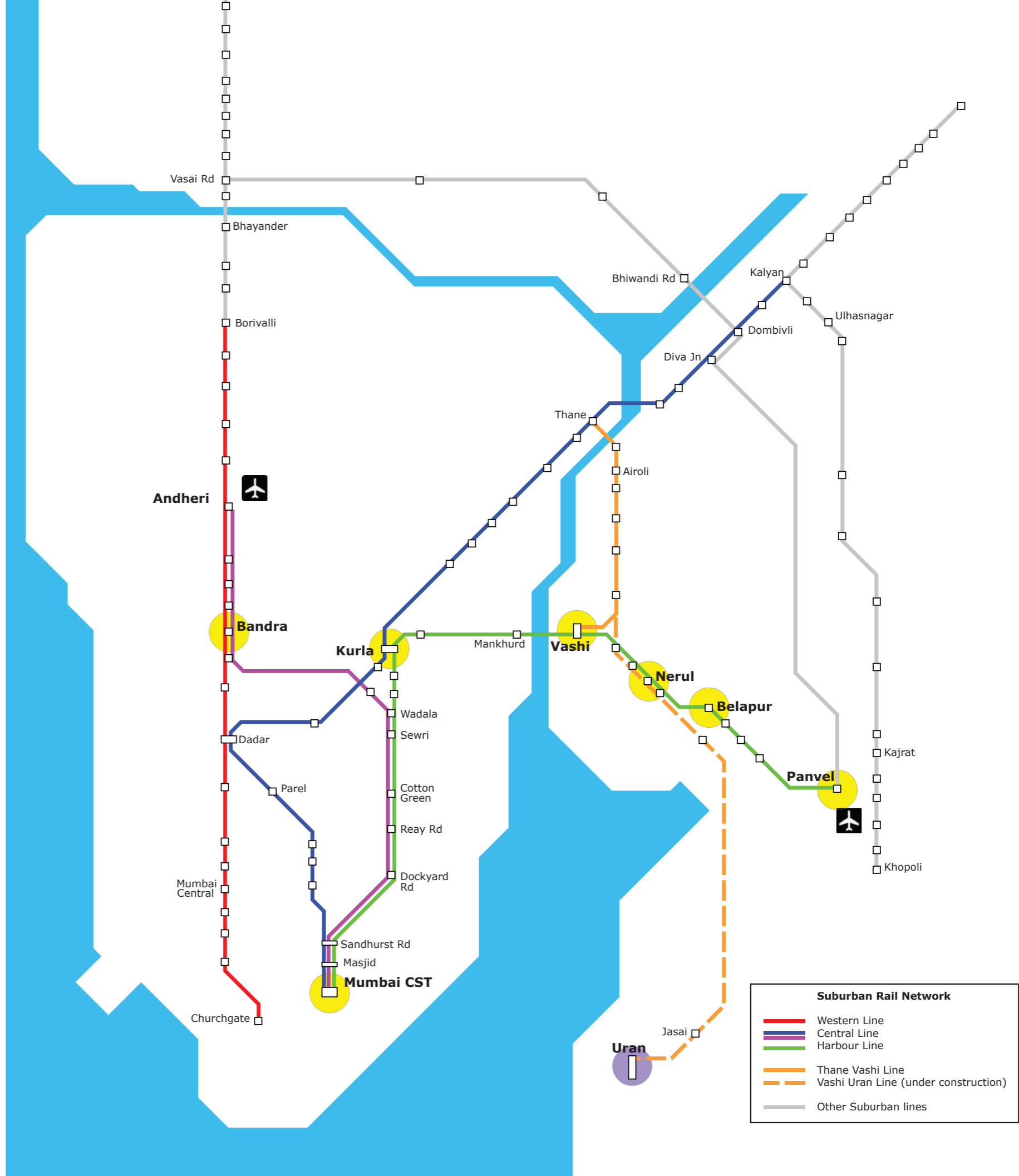
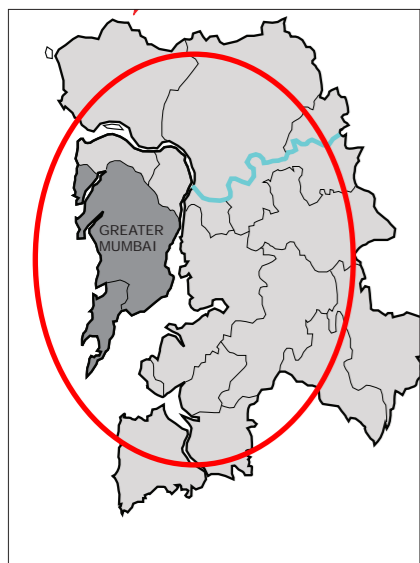
Western Railways
Central Railways

Harbour Line

Thane- Vashi- Uran Line
Other Suburban Lines



Suburban Rail Network	
	Western Line
	Central Line
	Harbour Line
	Thane Vashi Line
	Vashi Uran Line (under construction)
	Other Suburban lines



problem definitions

Soft locations of the city (derelict industrial sites and waterfronts) are under threat of **piecemeal development** which cater to the interests of the elite and private developers.

The **historical city**, which is the hub of all commerce & heart of all culture and entertainment has **poor accessibility to the region** owing to the linear geography of the city.

research questions

How can the island city be developed in a more integral manner taking into account **the soft locations in the city**, which are strategically located between the two business districts in question?

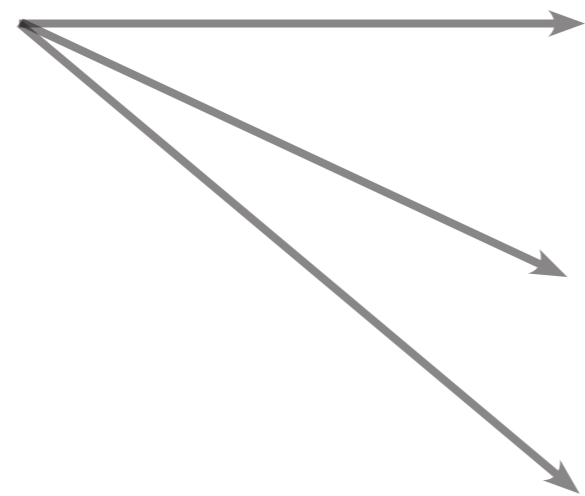
How to improve the **accessibility** of the CBD?

How can you **realise local qualities, realities and identities** while satisfying global interests?

objective

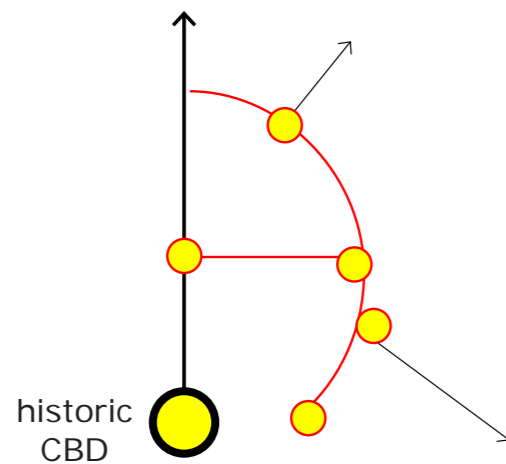
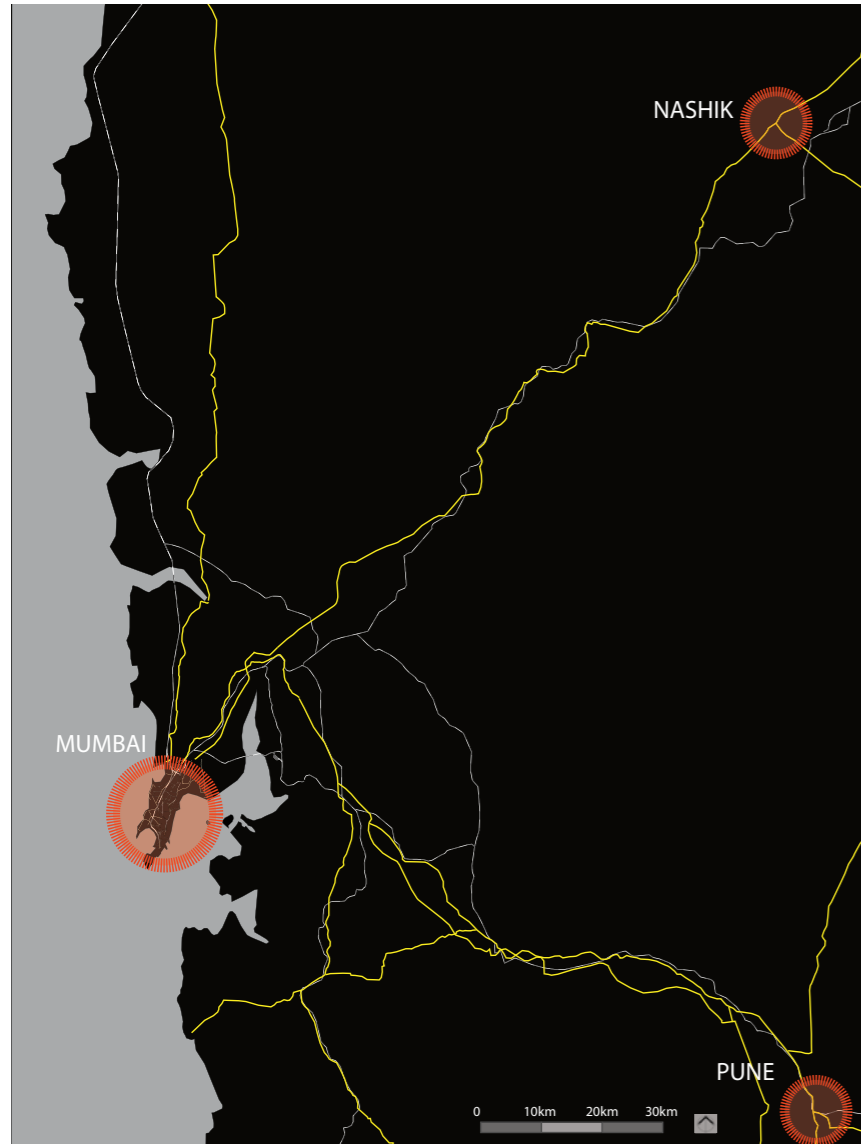
To develop a strategic plan for the region that has its relevance across the different urban scales.

PLANNING OBJECTIVES

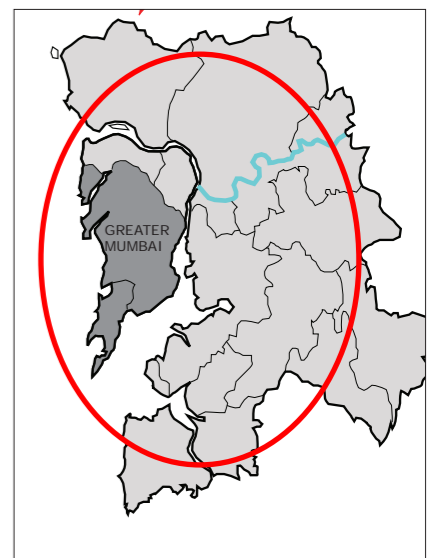
- 
- 01. Improving the accessibility of the CBD to the region.
 - 02. Reducing the pressure on the urban fabric of the island city.
 - 03. To integrate local realities while satisfying global interests

REGIONAL SCALE

INFRASTRUCTURE

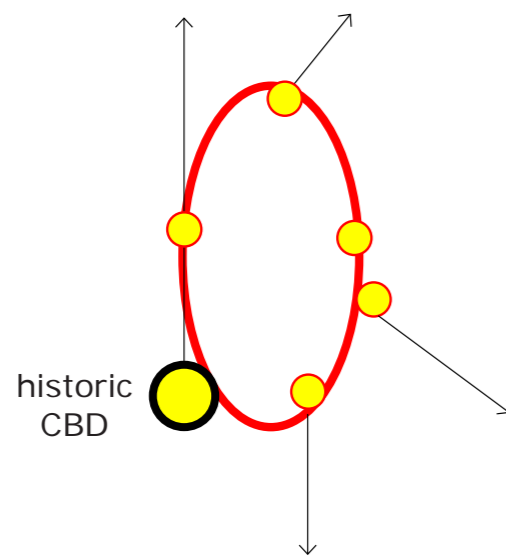
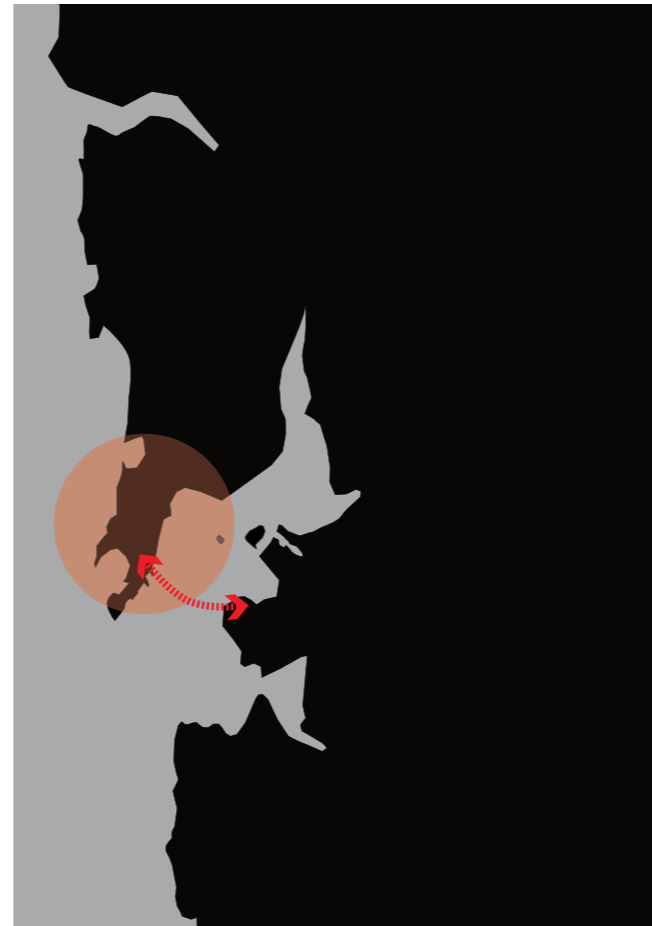
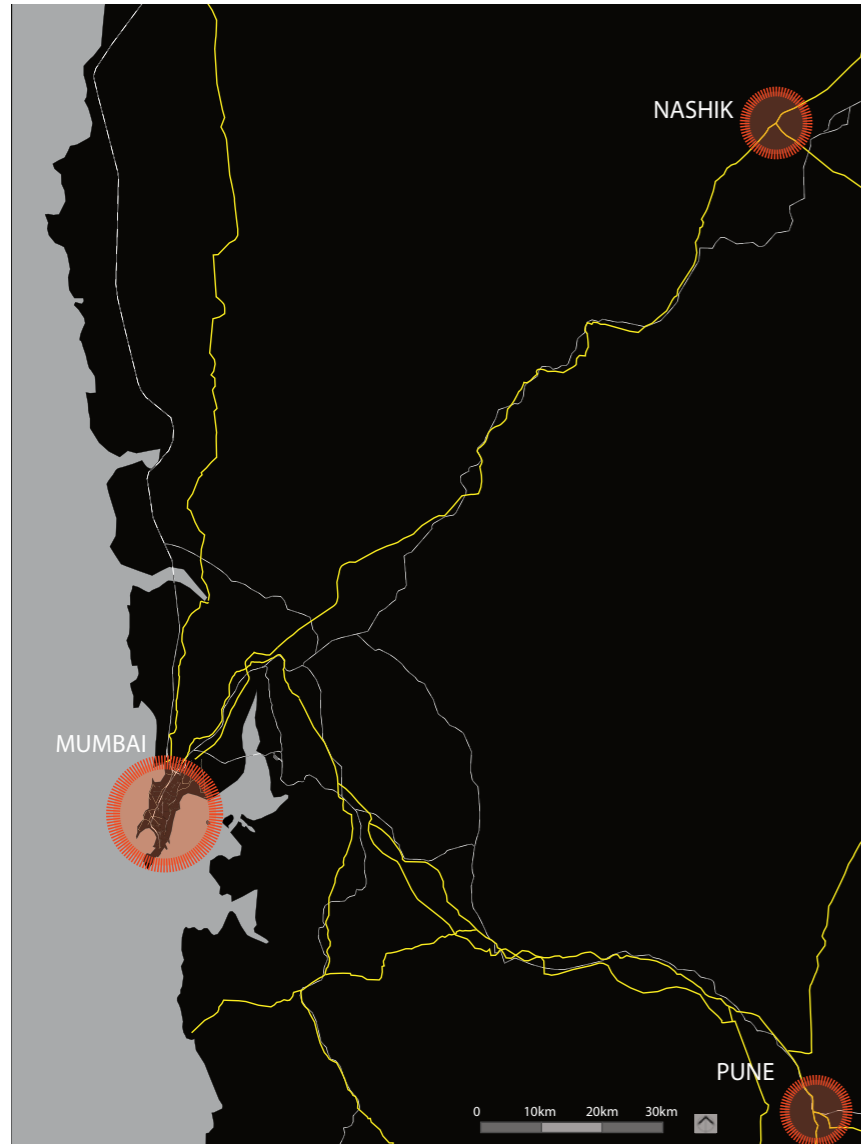


PROBLEM Accessibility of dominant business district in South Mumbai



REGIONAL SCALE strategy 2030+

INFRASTRUCTURE

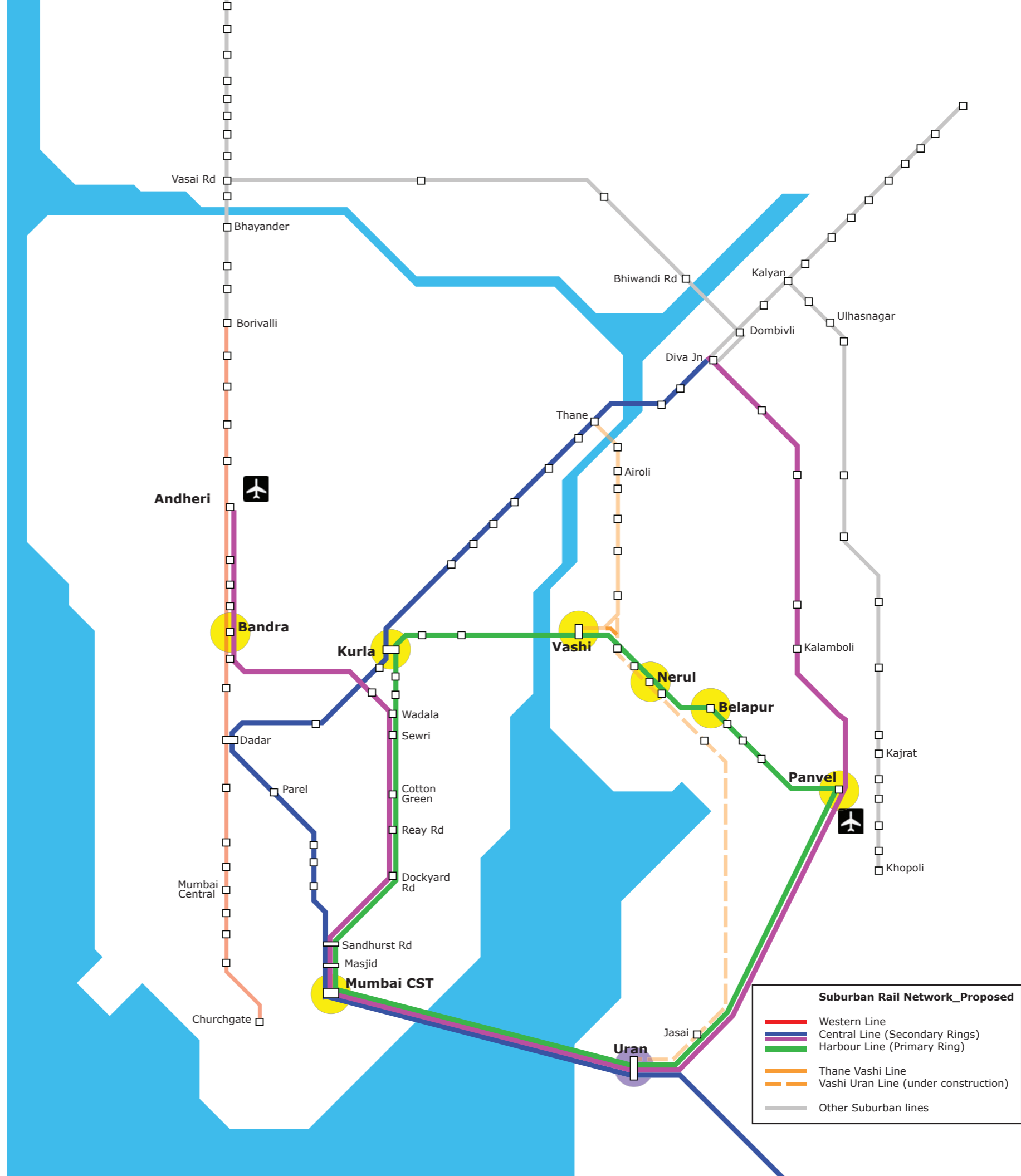
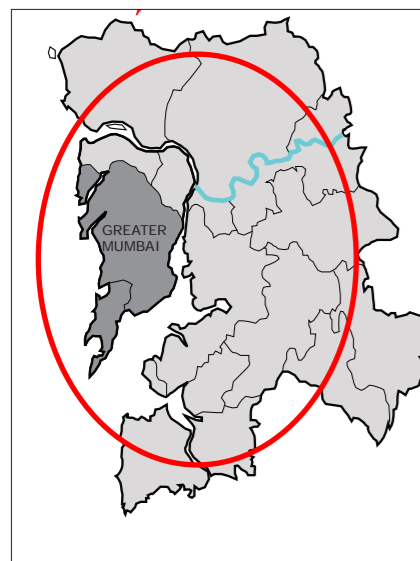


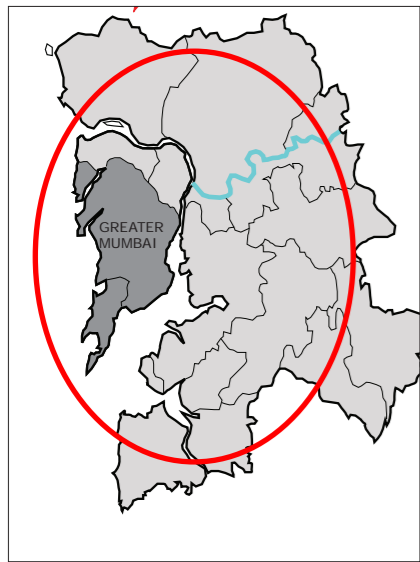
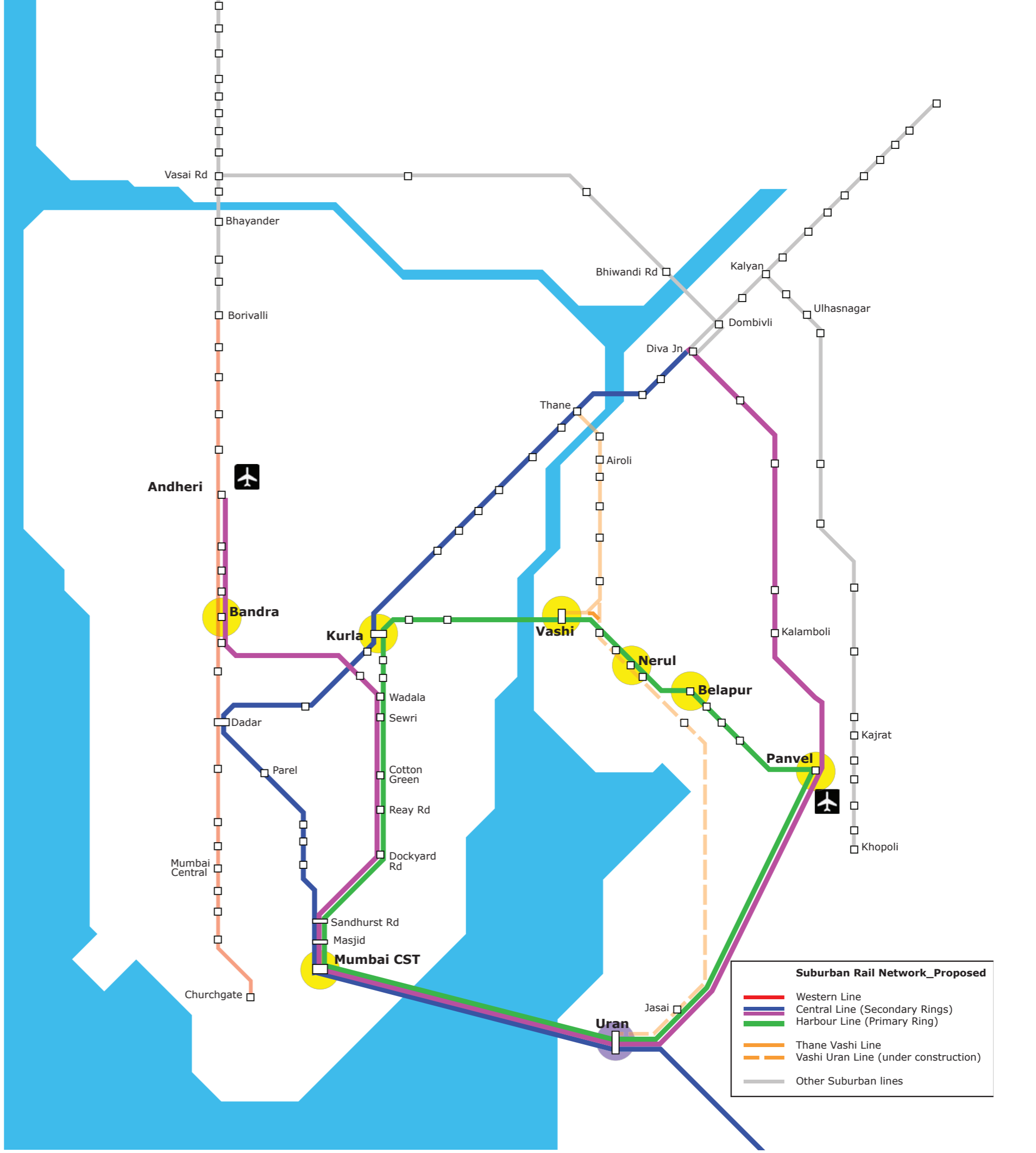
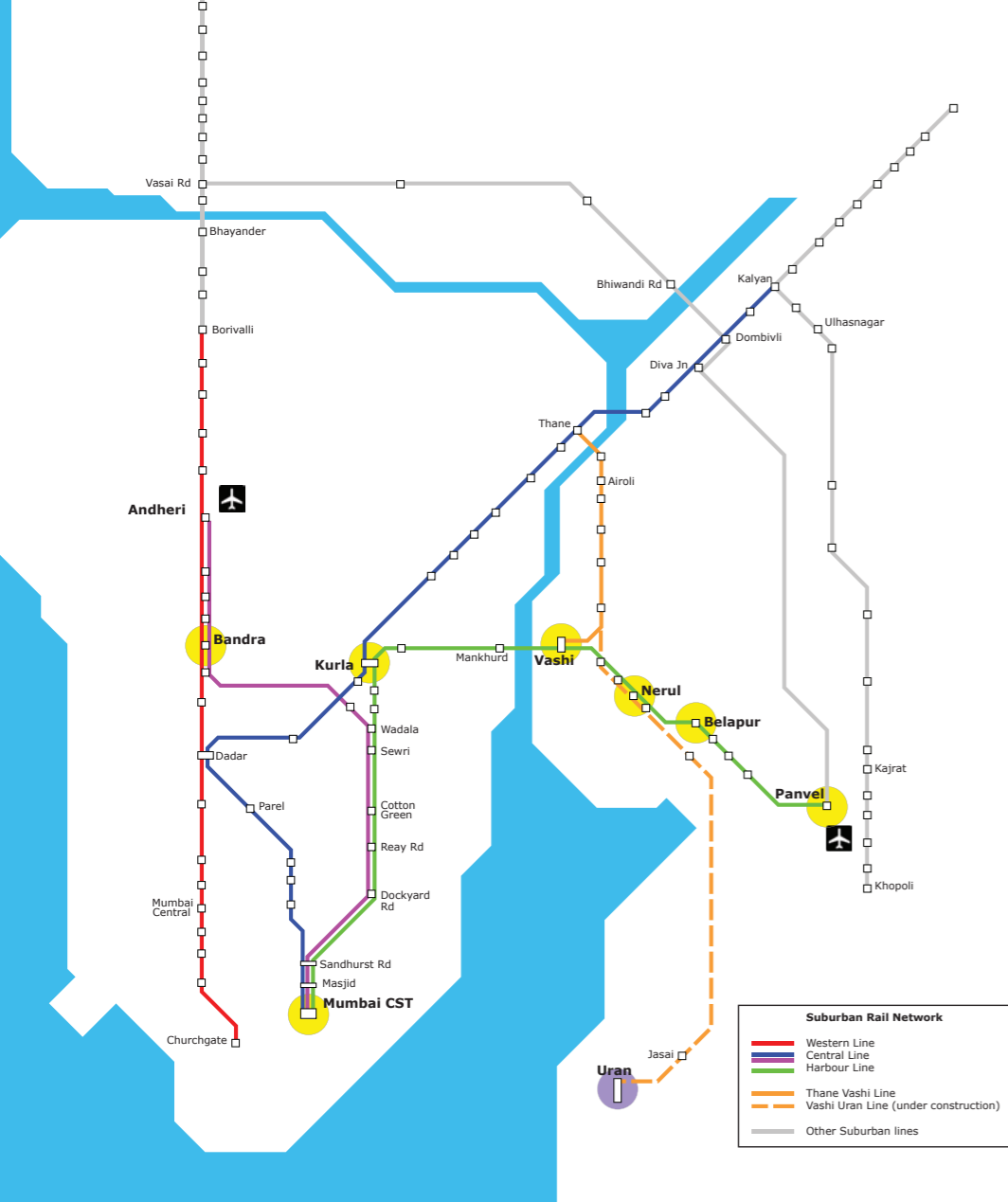
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STRATEGY Ring model

Restructuring the position of the **CBD** from the tail end of a linear infrastructure axis to being located along a ring that envelops the metropolis

changing economies





REGIONAL SCALE strategy 2030+

Infrastructure link over the bay

MUMBAI
CBD

10 km

SHEVA (JNPT Port)

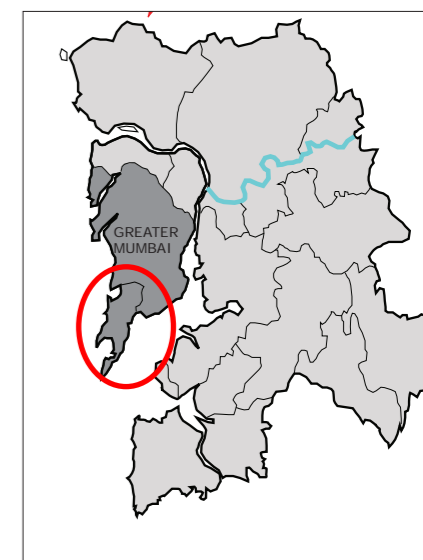
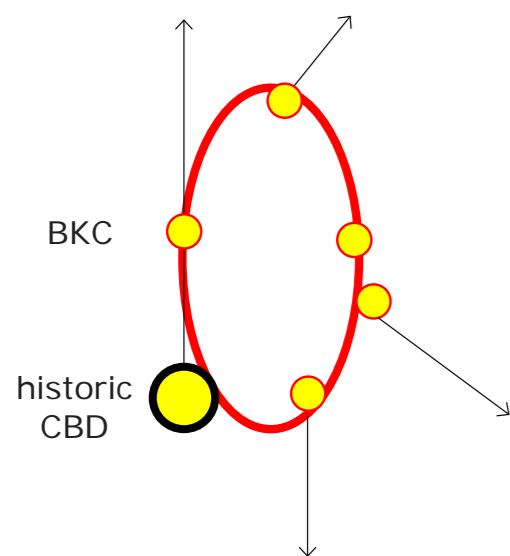
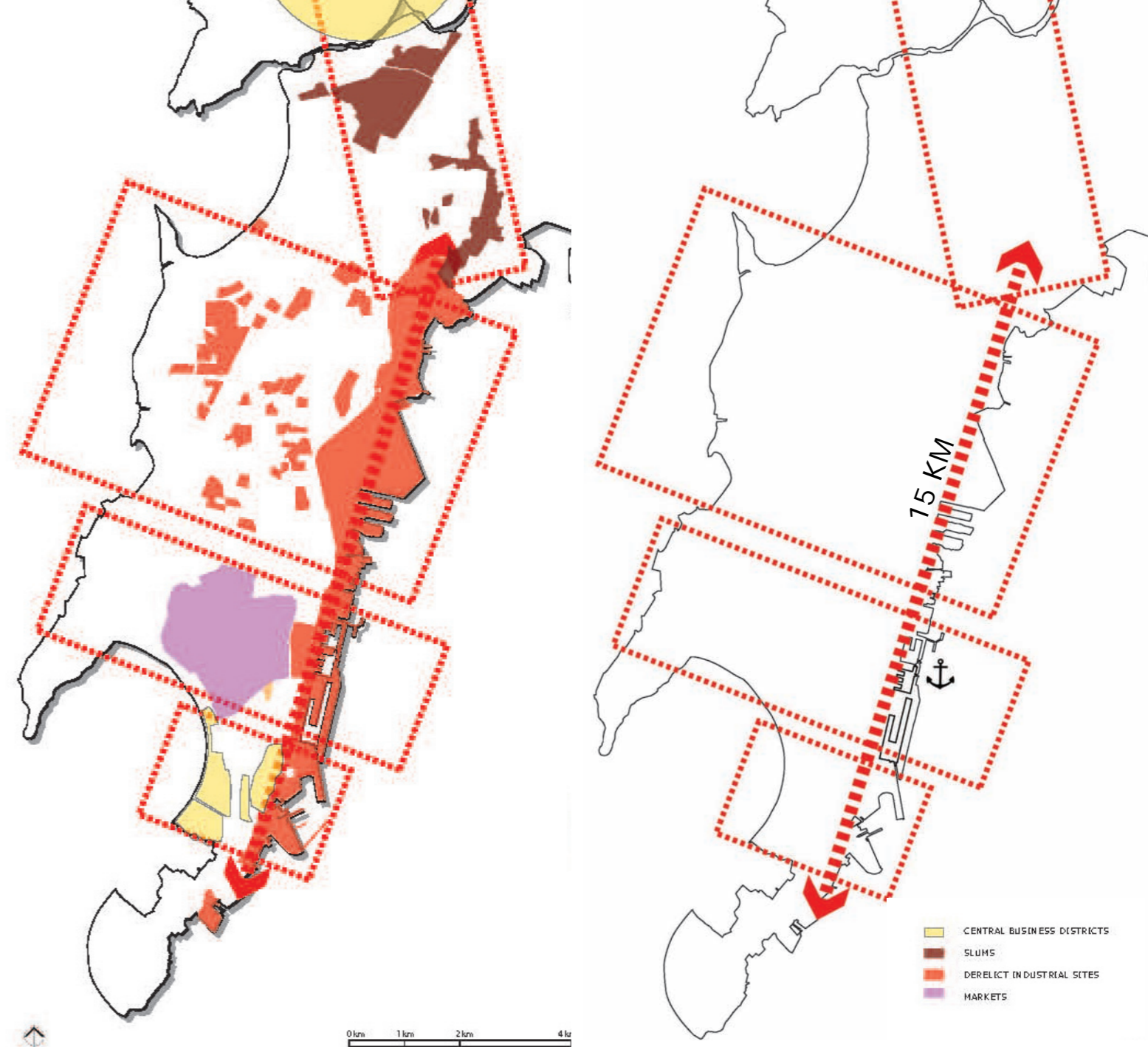
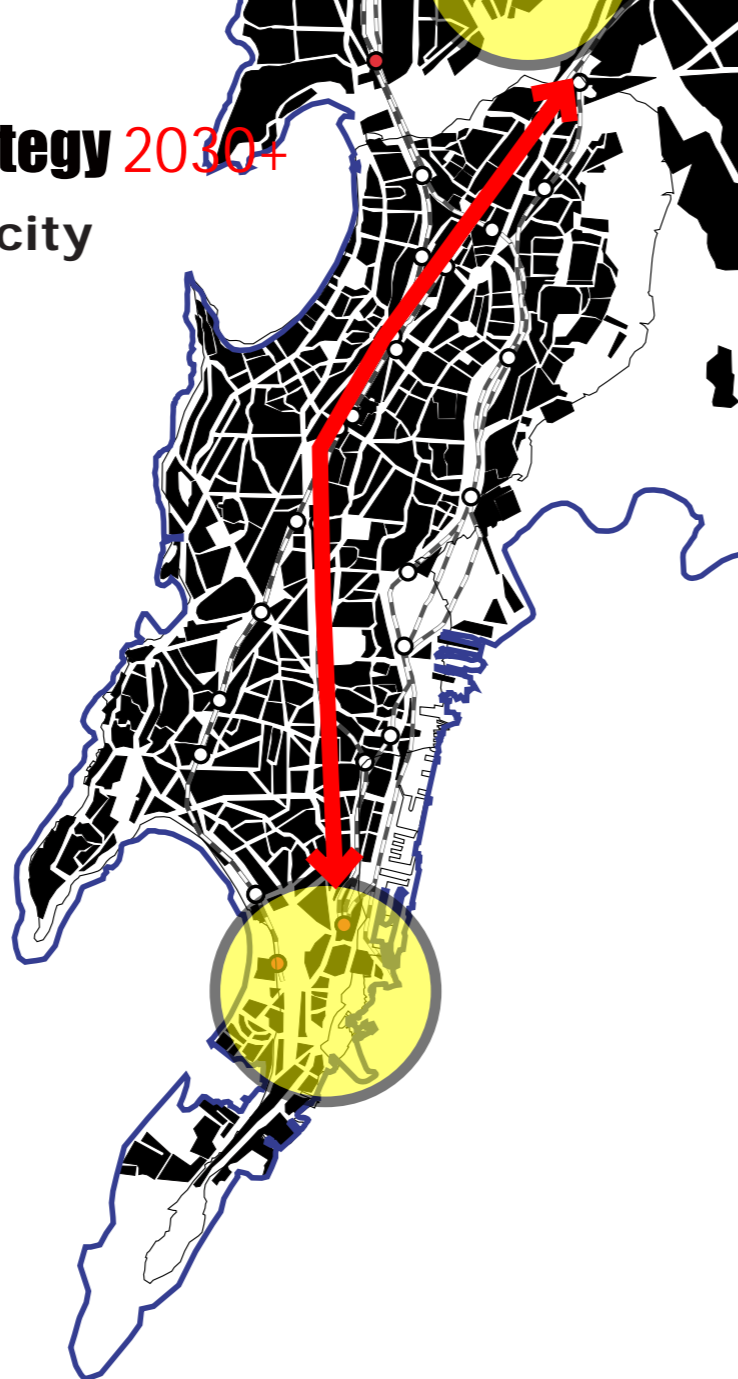
URAN

JASAI



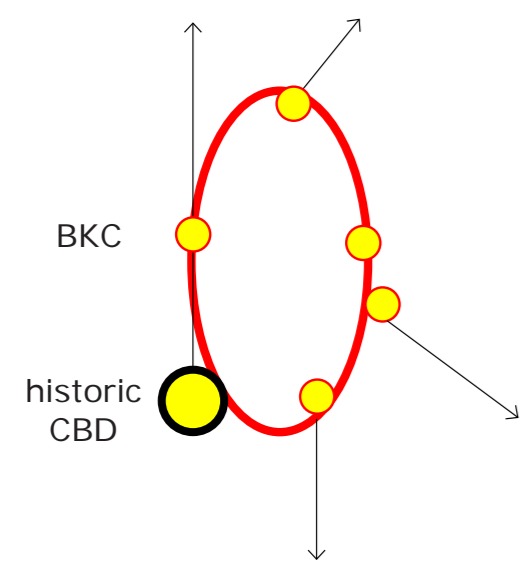
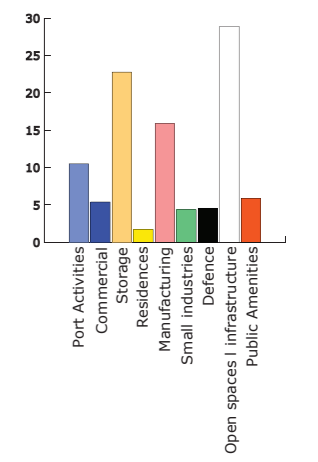
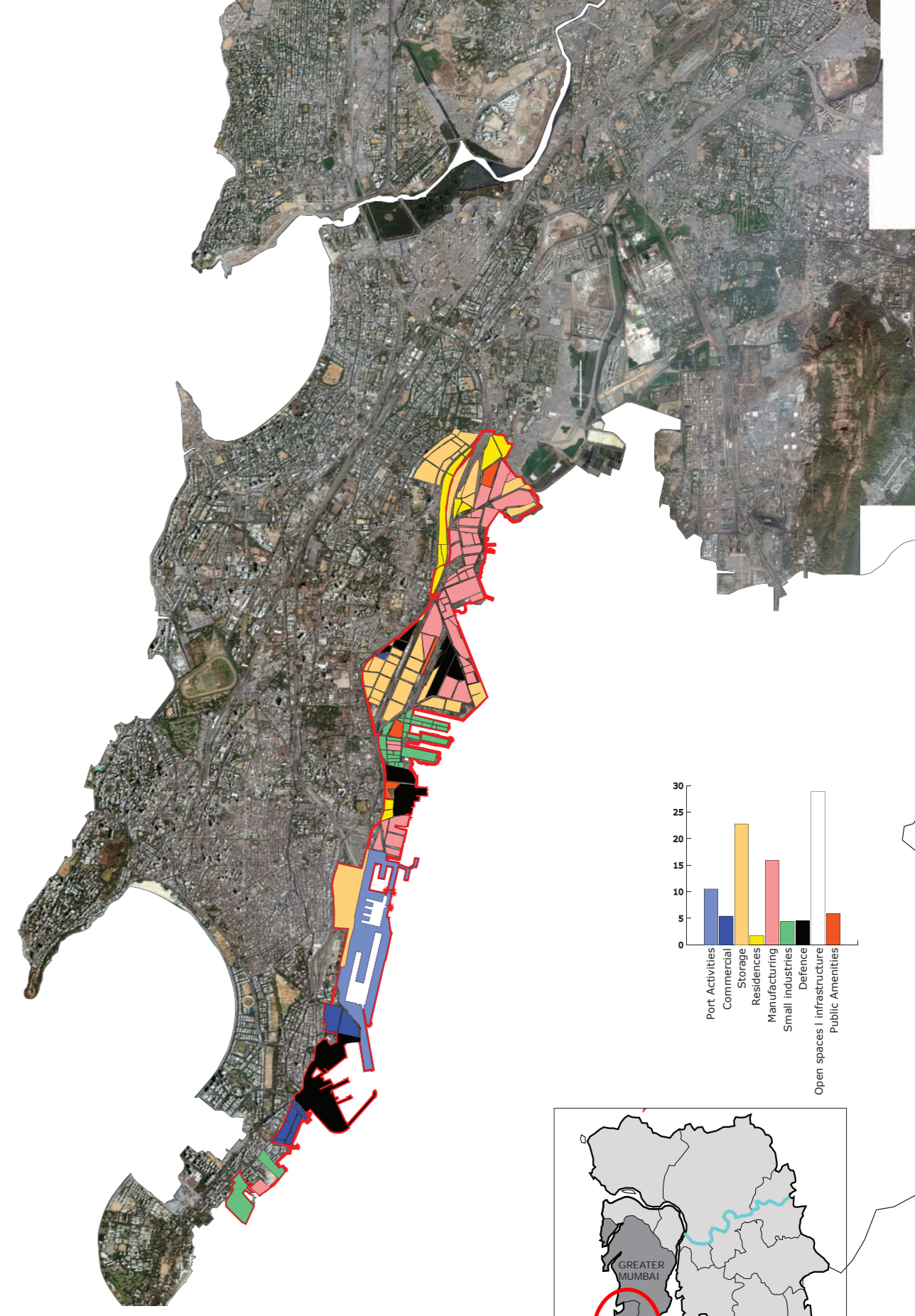
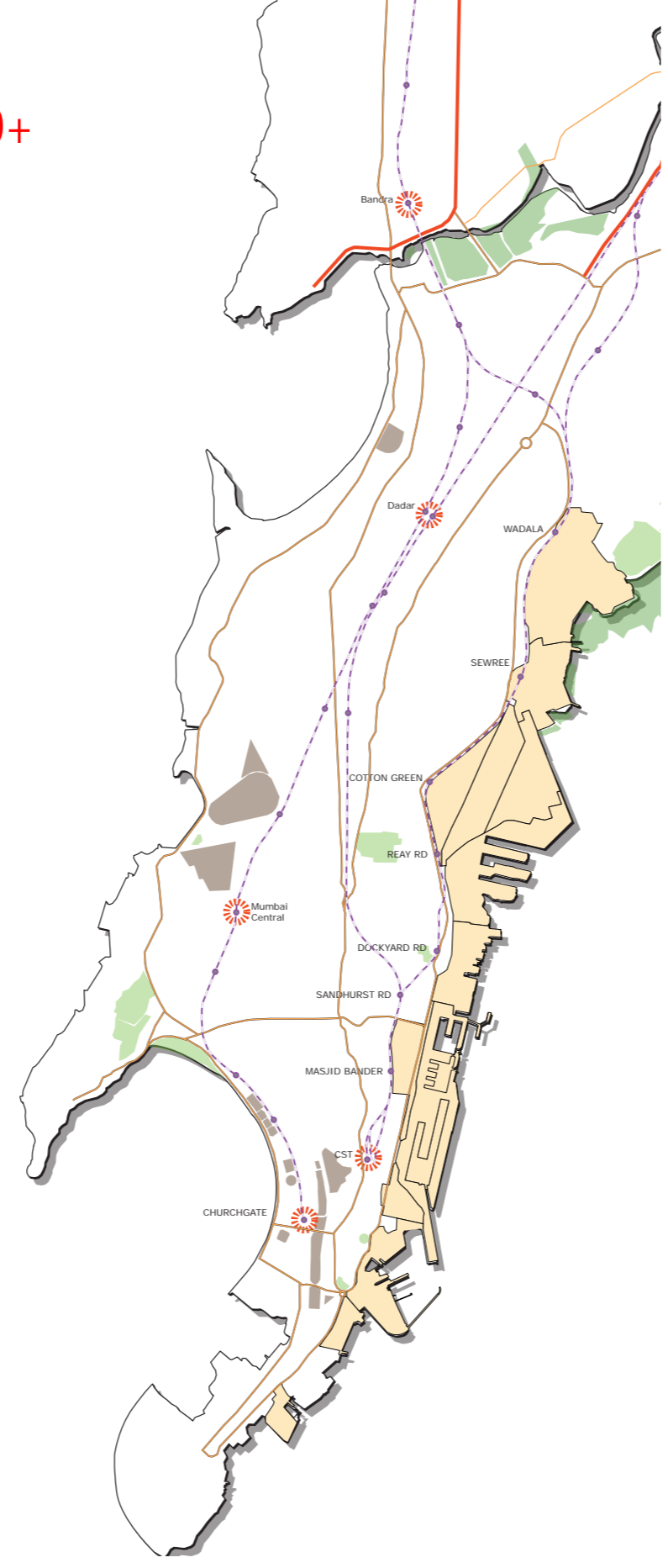
REGIONAL SCALE strategy 2030+

NS infrastructure in island city



REGIONAL SCALE strategy 2030+

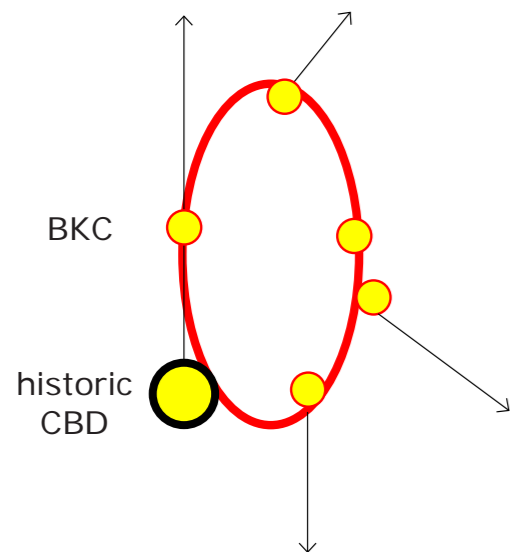
Integral development of Eastern Waterfront



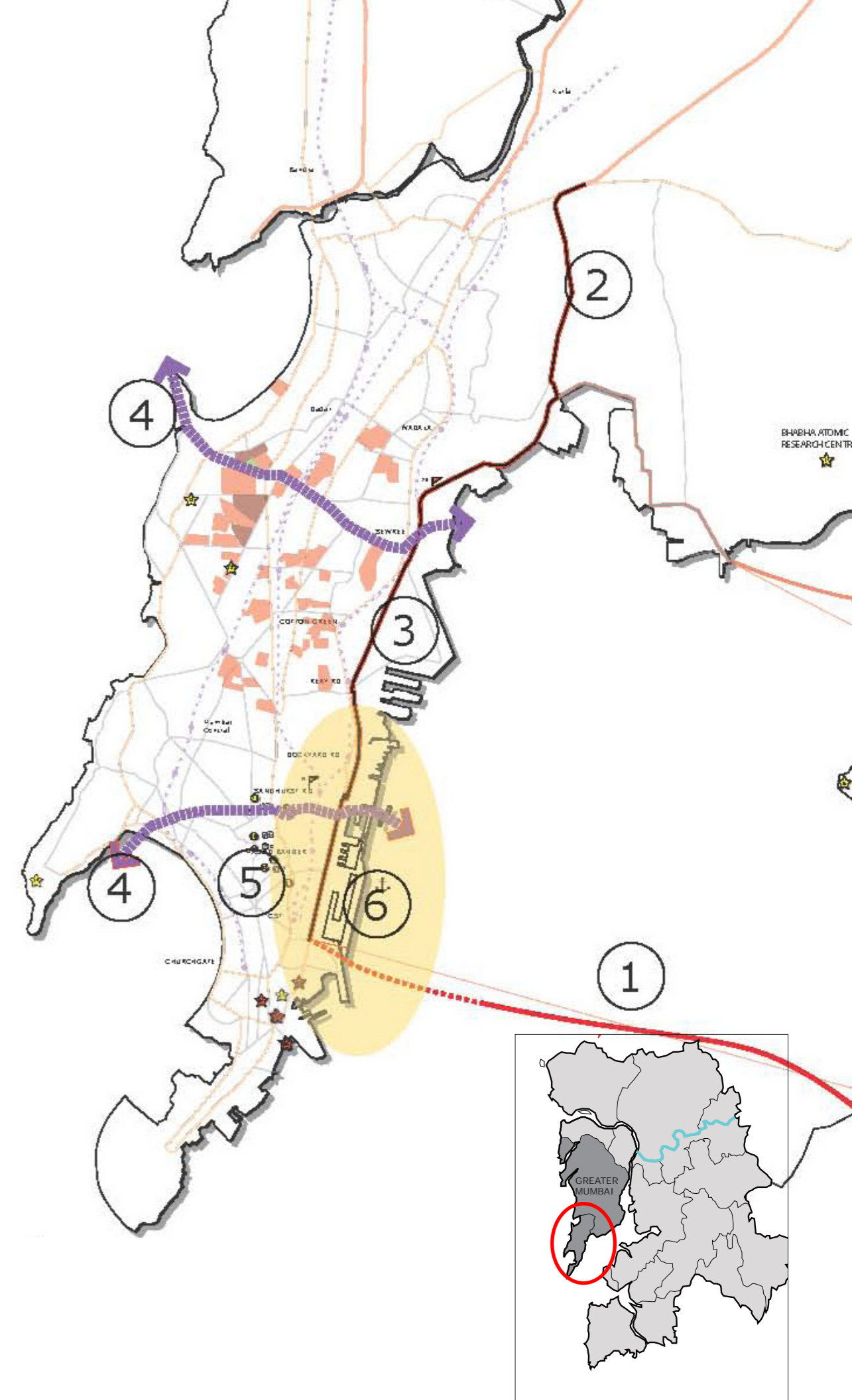
REGIONAL SCALE strategy 2030+

Key Projects

01. East- West infrastructure link over the bay
02. Enhancement of the North South axis from CST to Wadala
03. Integrated development of the Eastern Waterfront Area
04. Key East- West thoroughfares through the Island City along critical lines
05. Enhancement of the pedestrian and public space realm in South Mumbai
06. Project to overcome the physical barrier of the rail infrastructure separating the city from the port and making the EWF accessible



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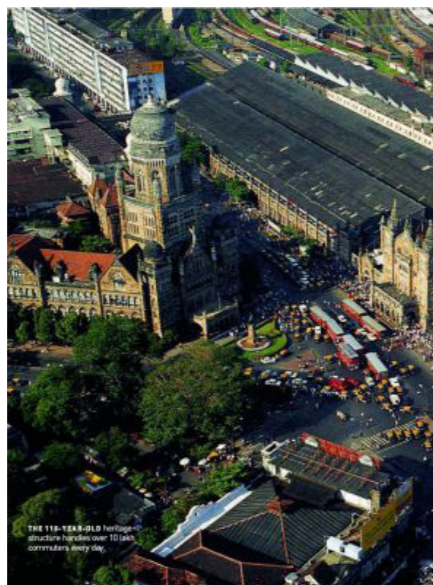
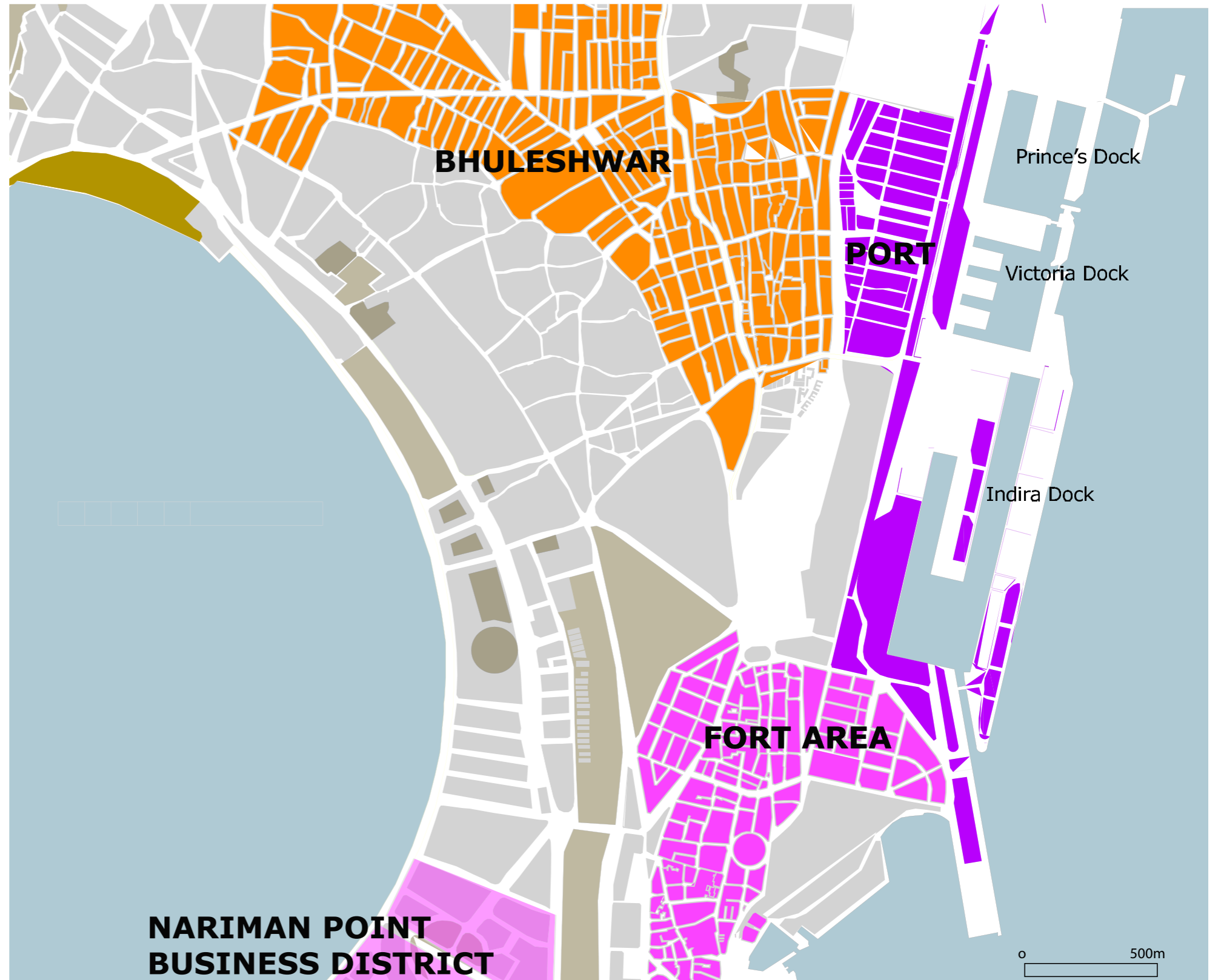
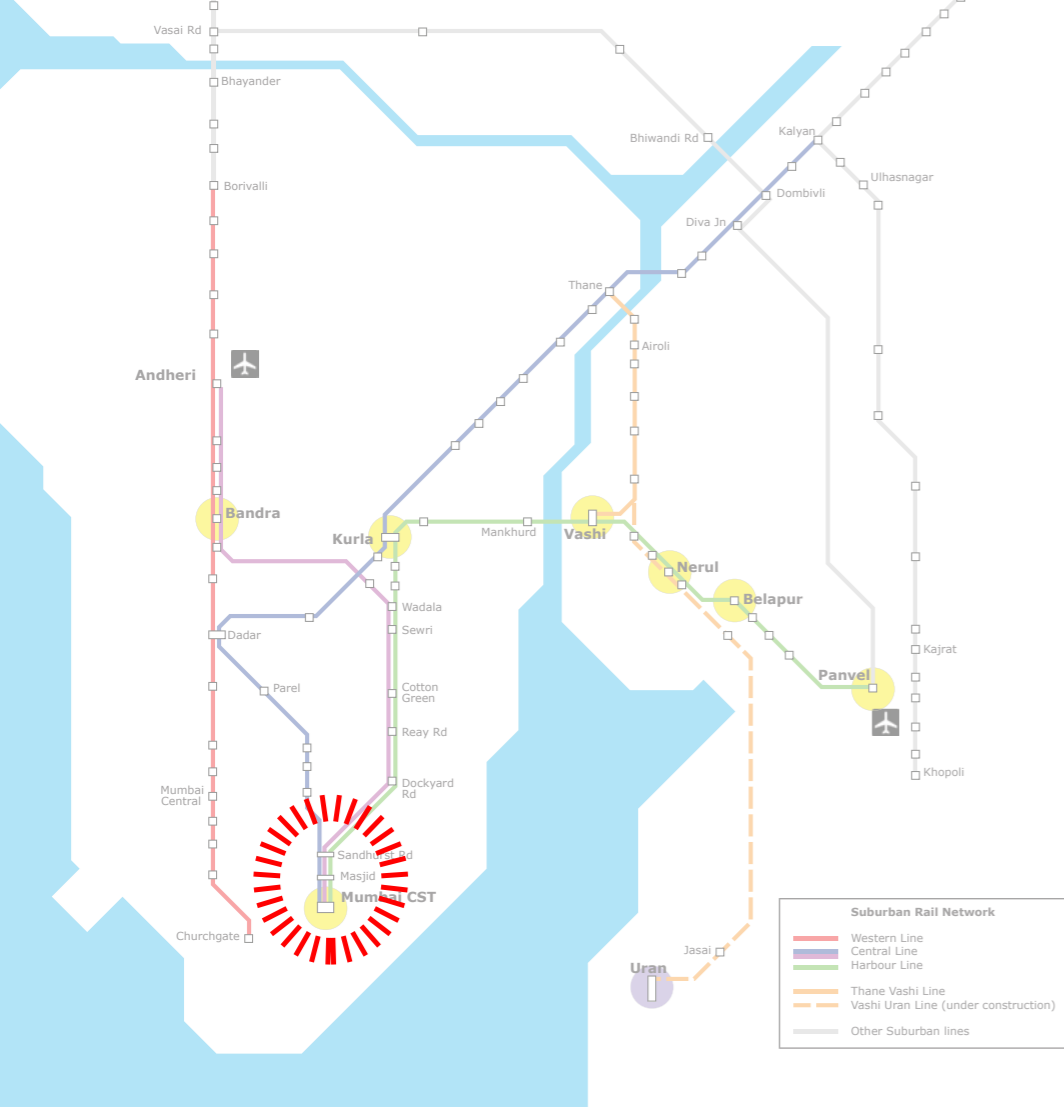
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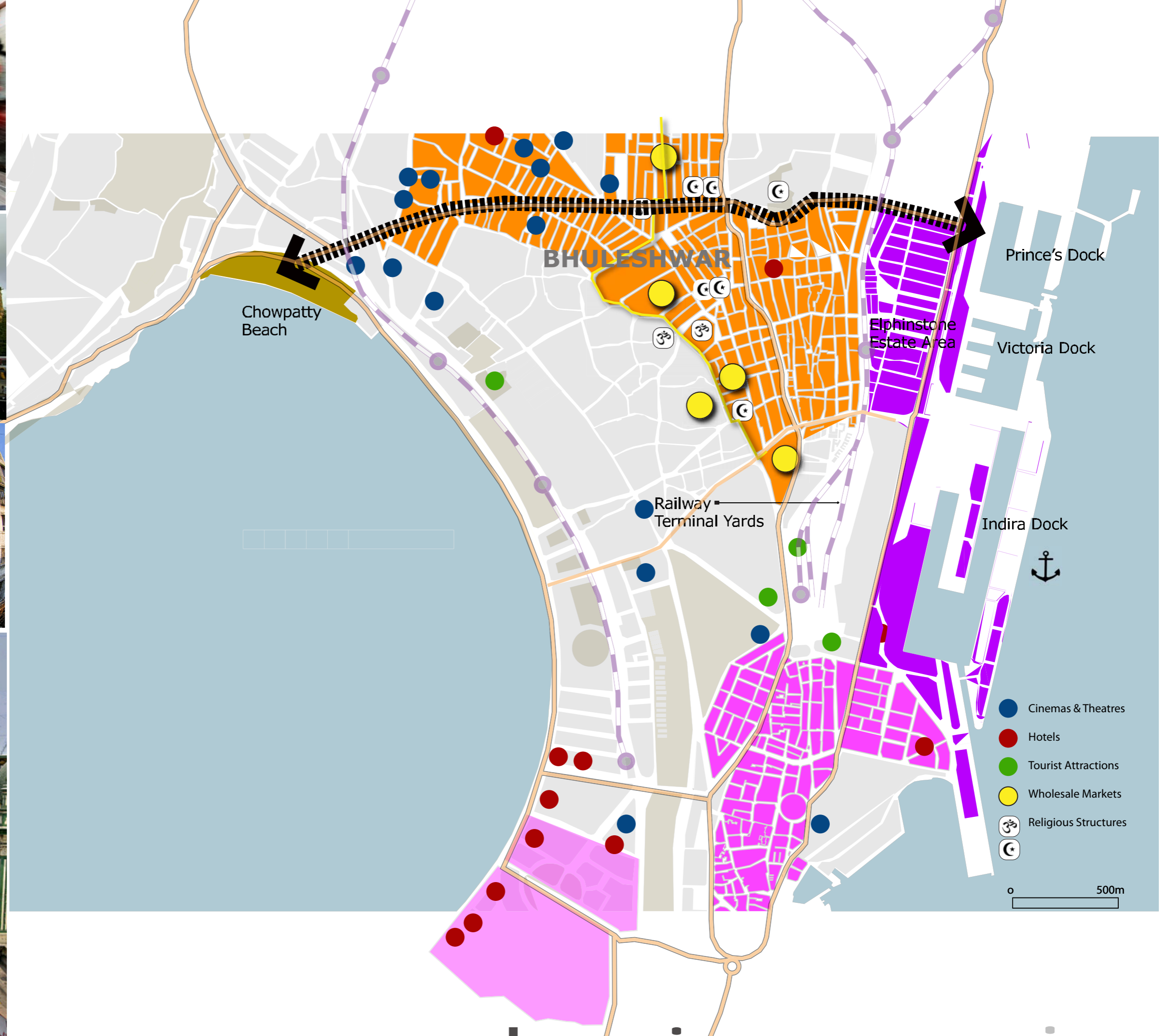


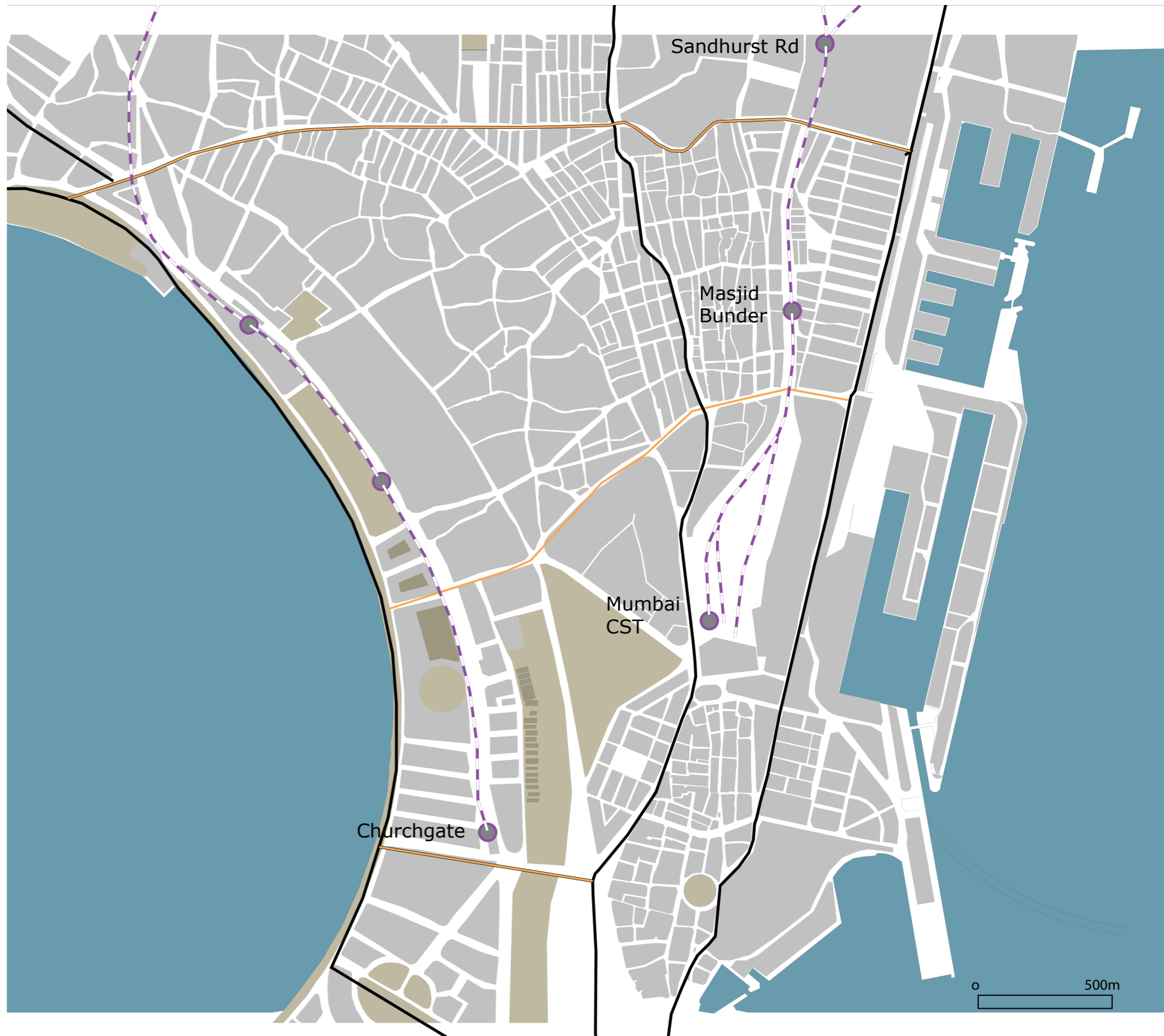
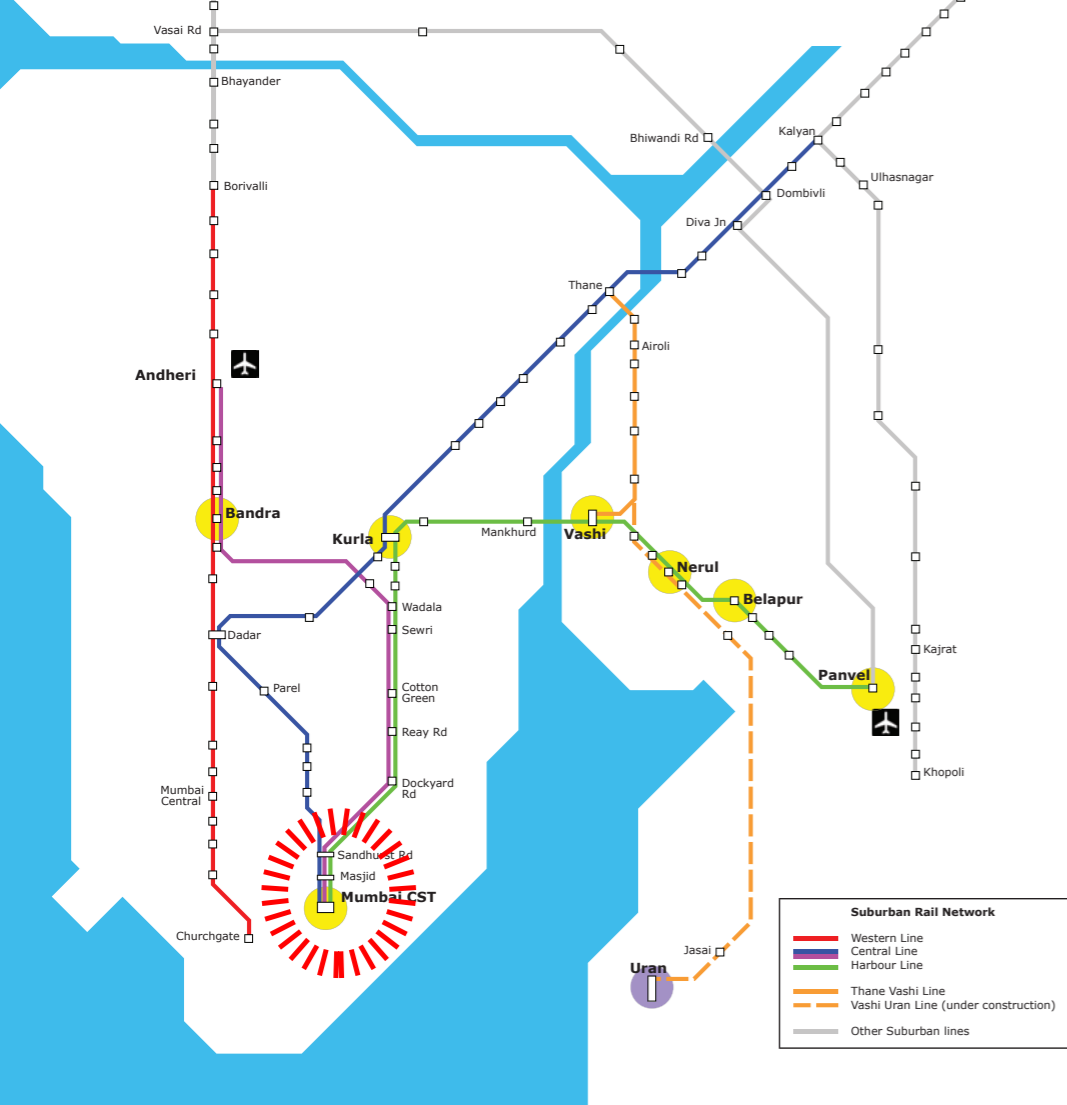
KEY PROJECT

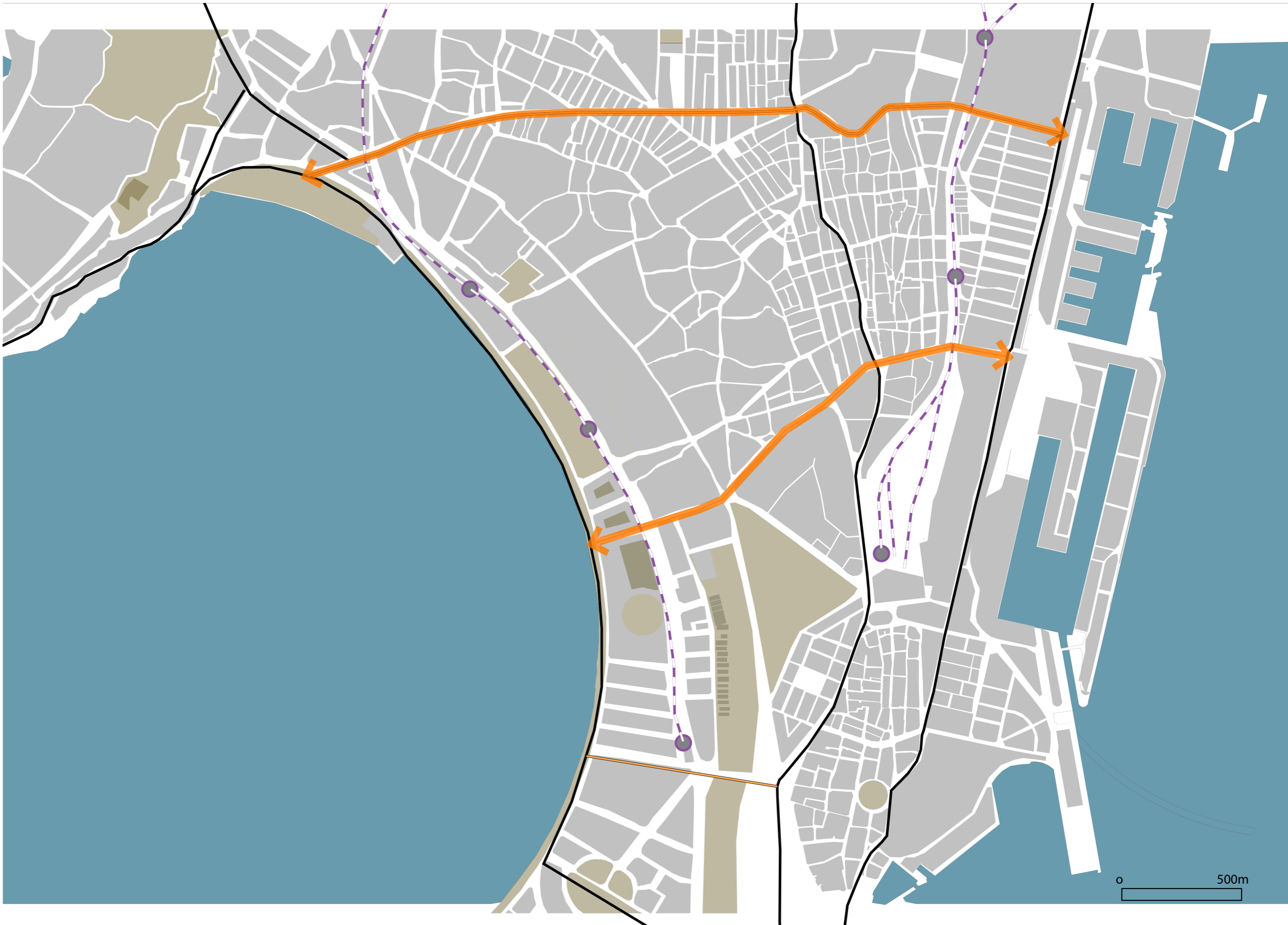
Restructuring the position of the **CBD** from the tail end of a linear infrastructure axis to being located along a ring that envelops the metropolis

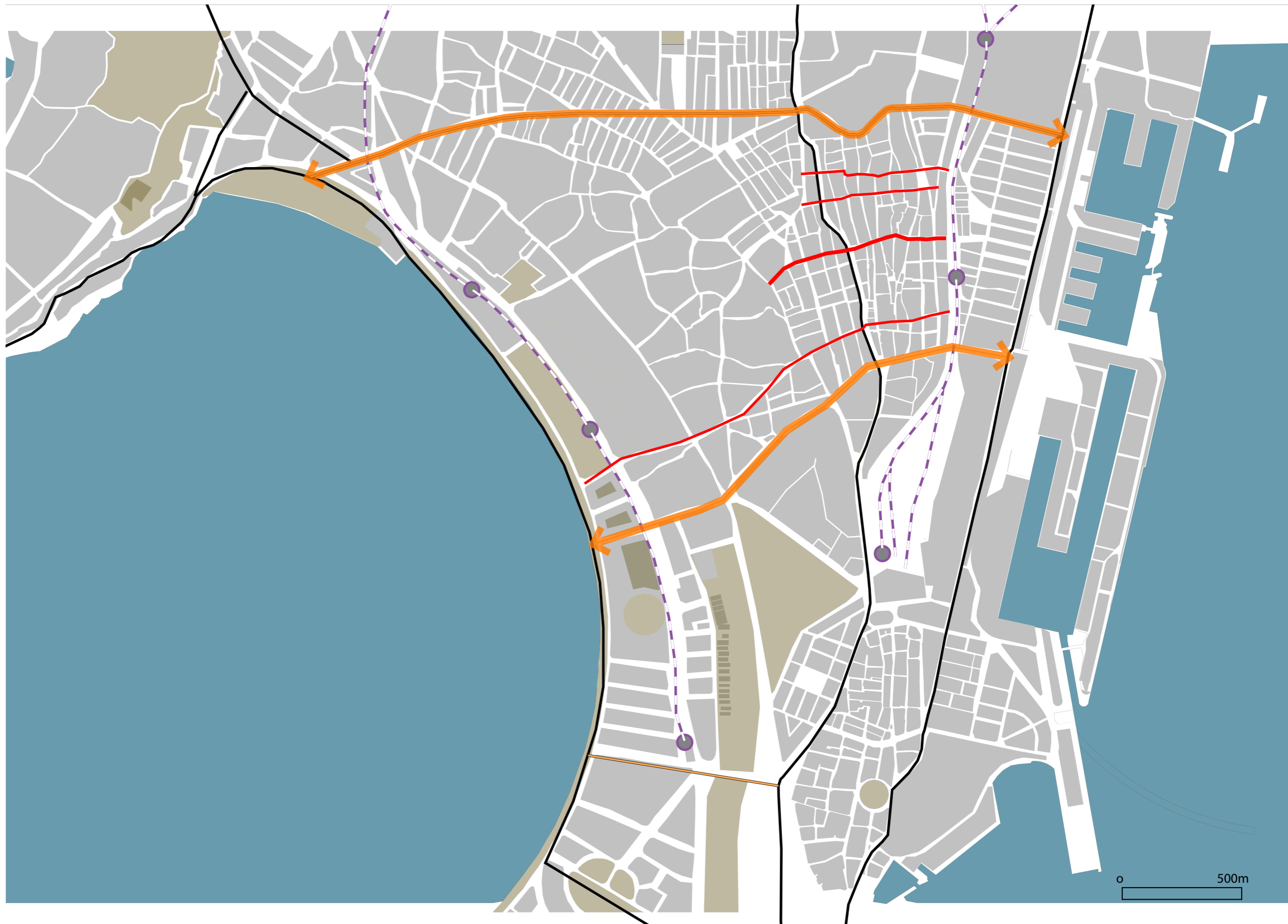
URBAN DEVELOPMENT HISTORY

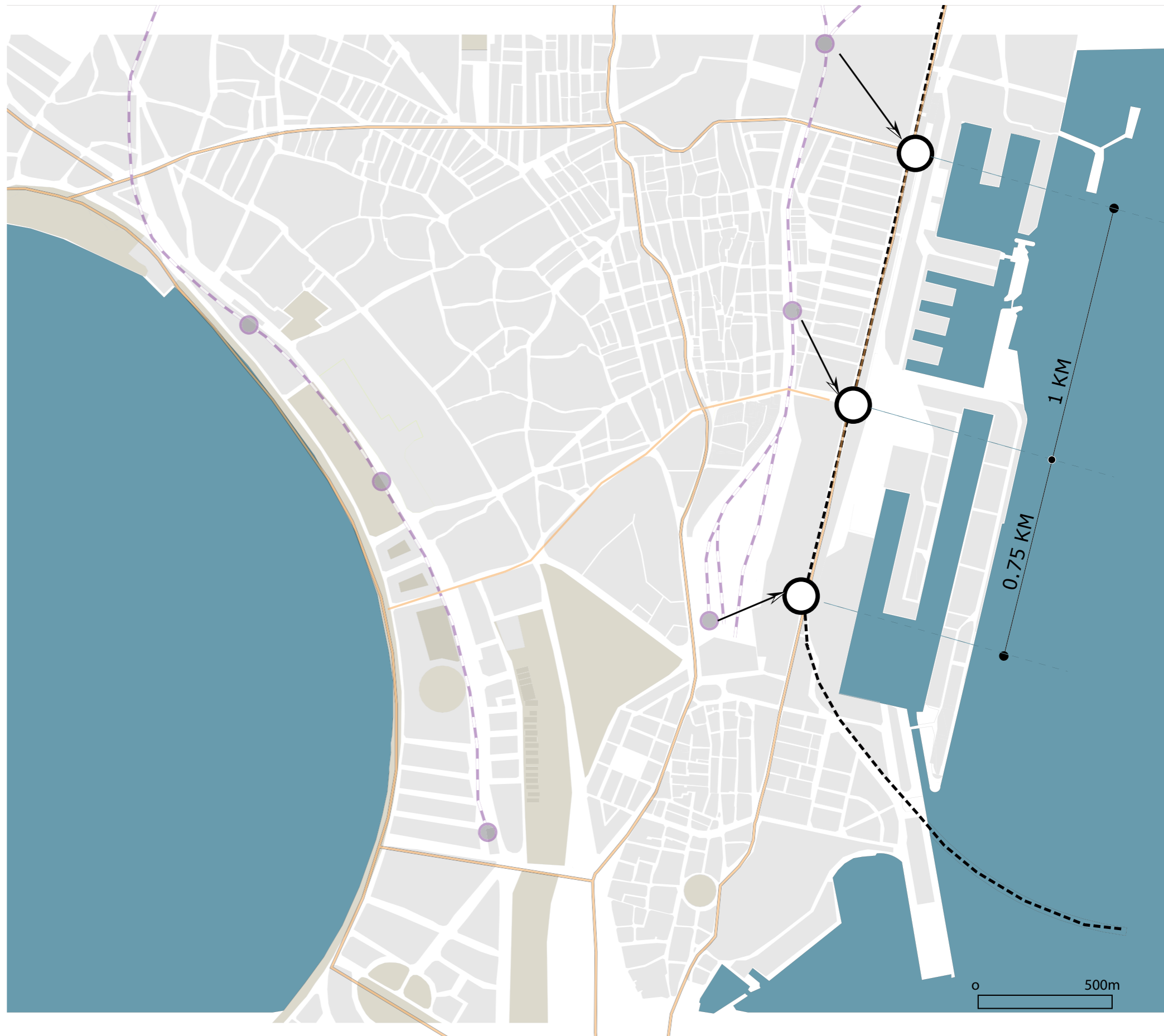
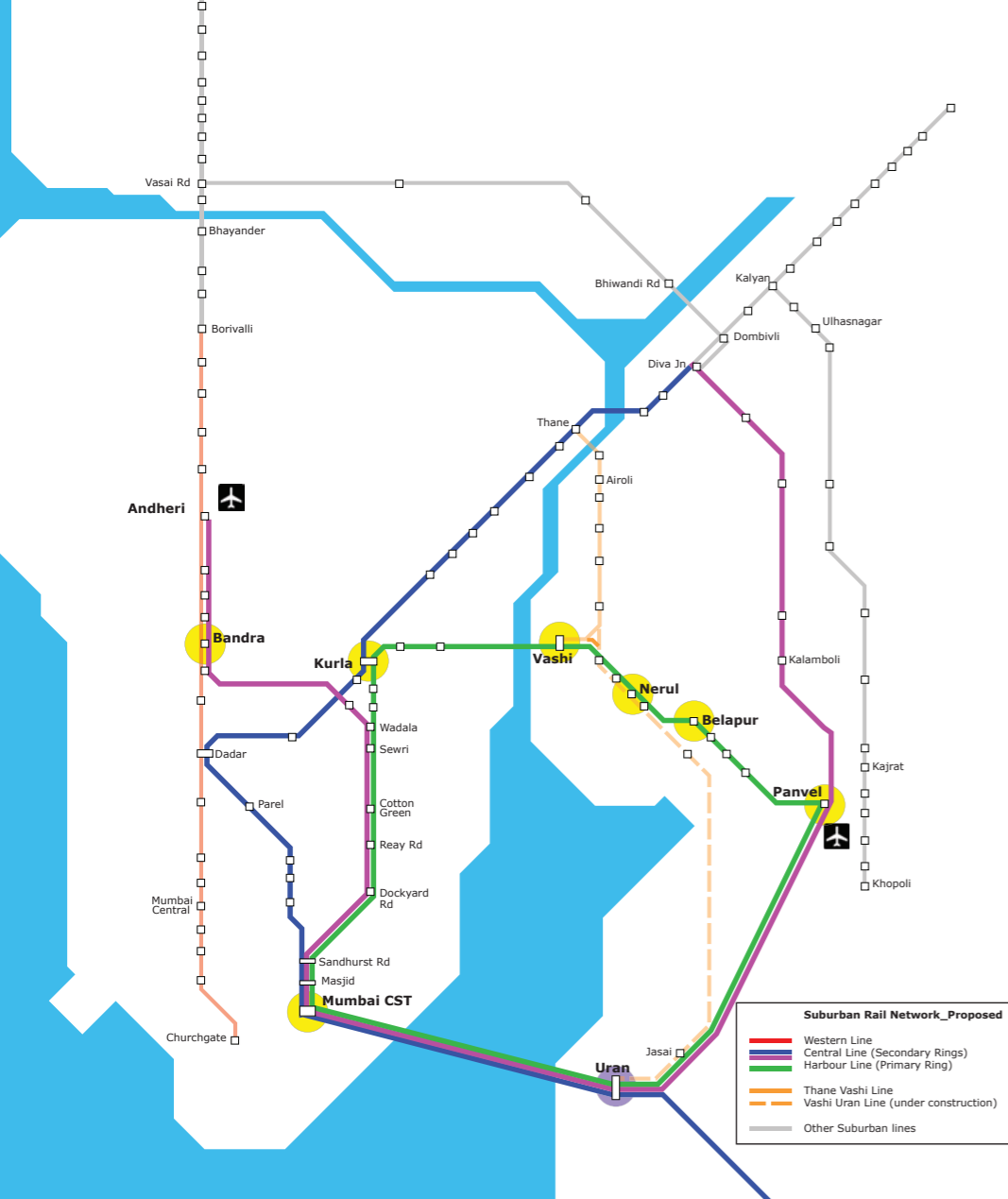




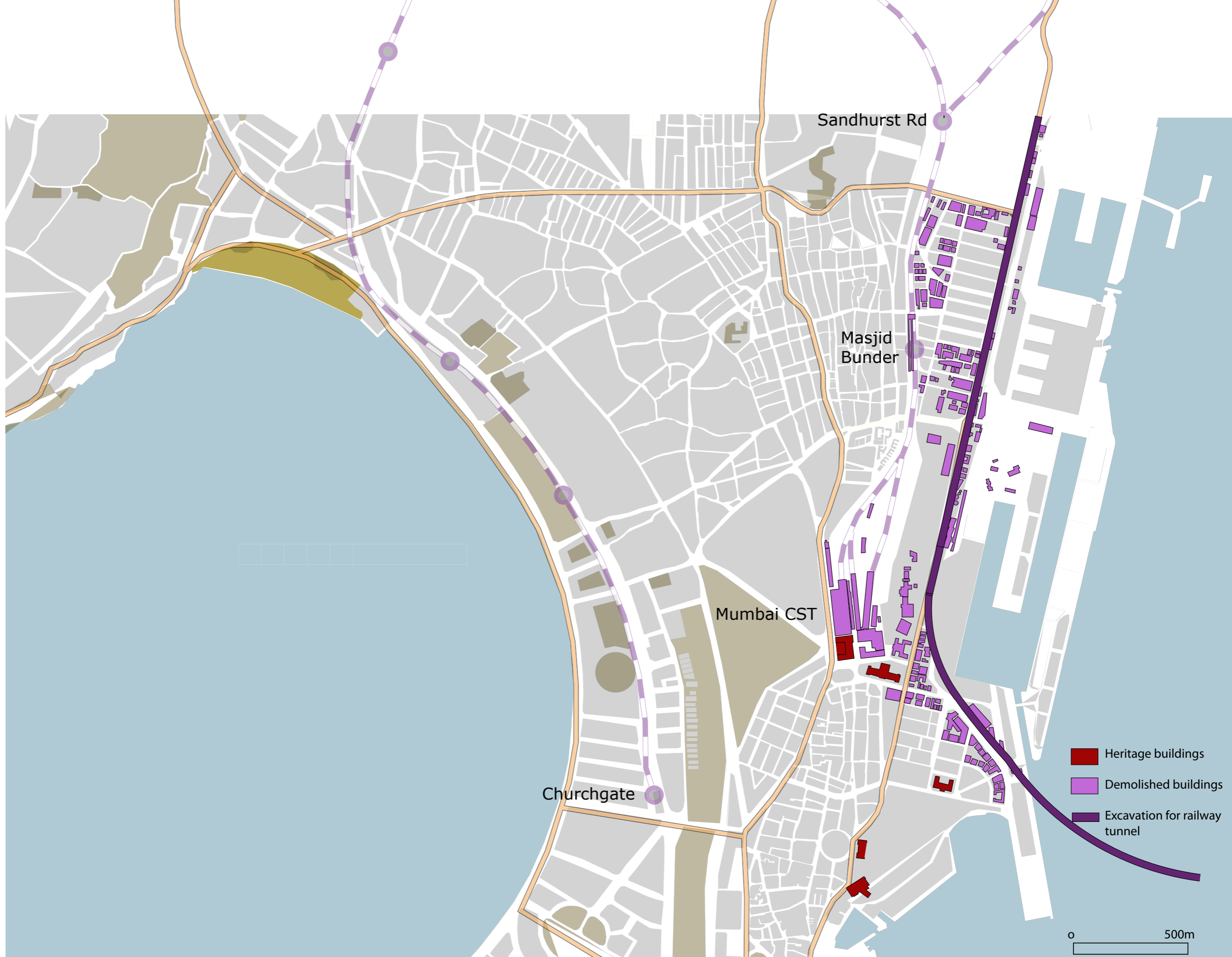


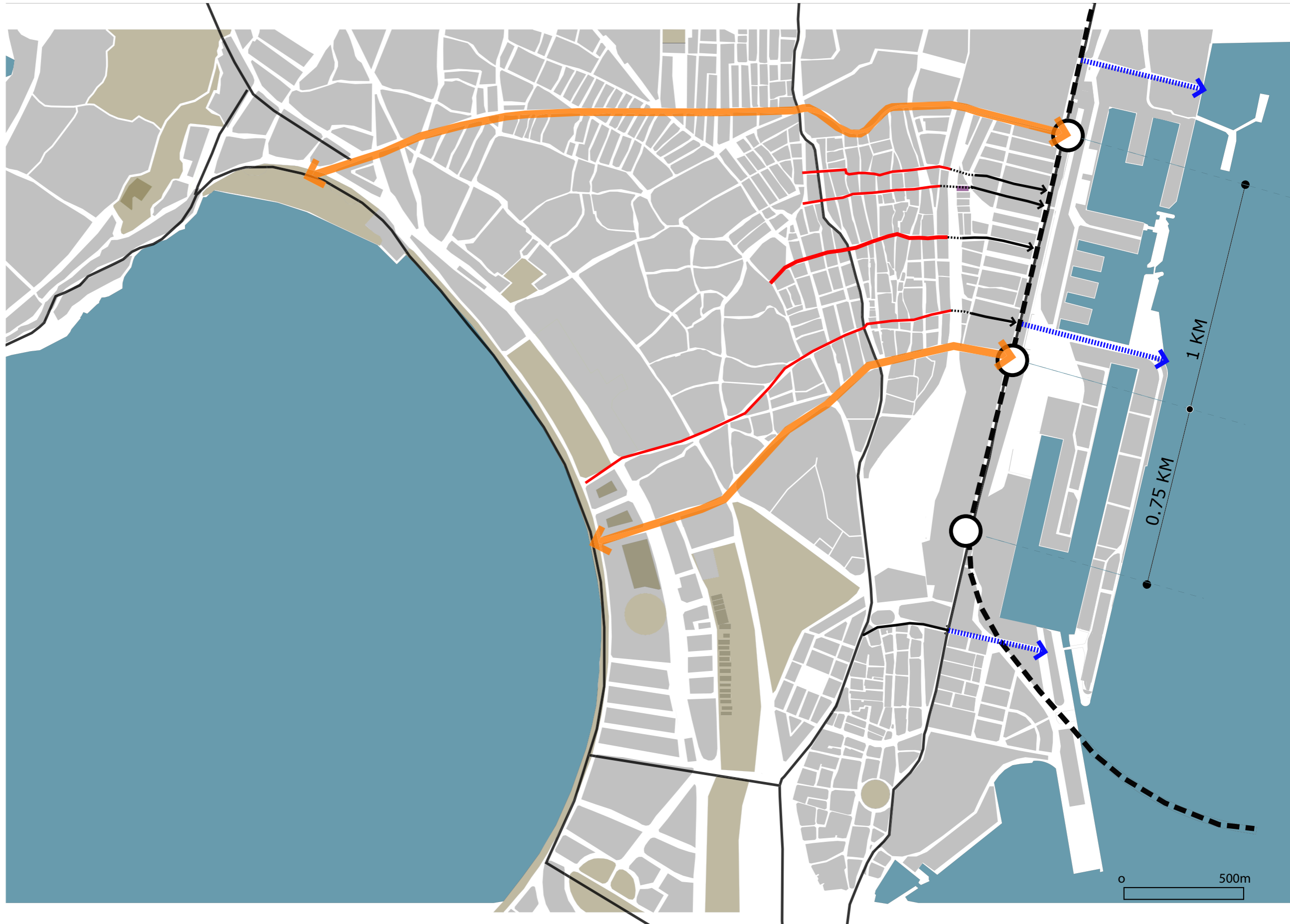


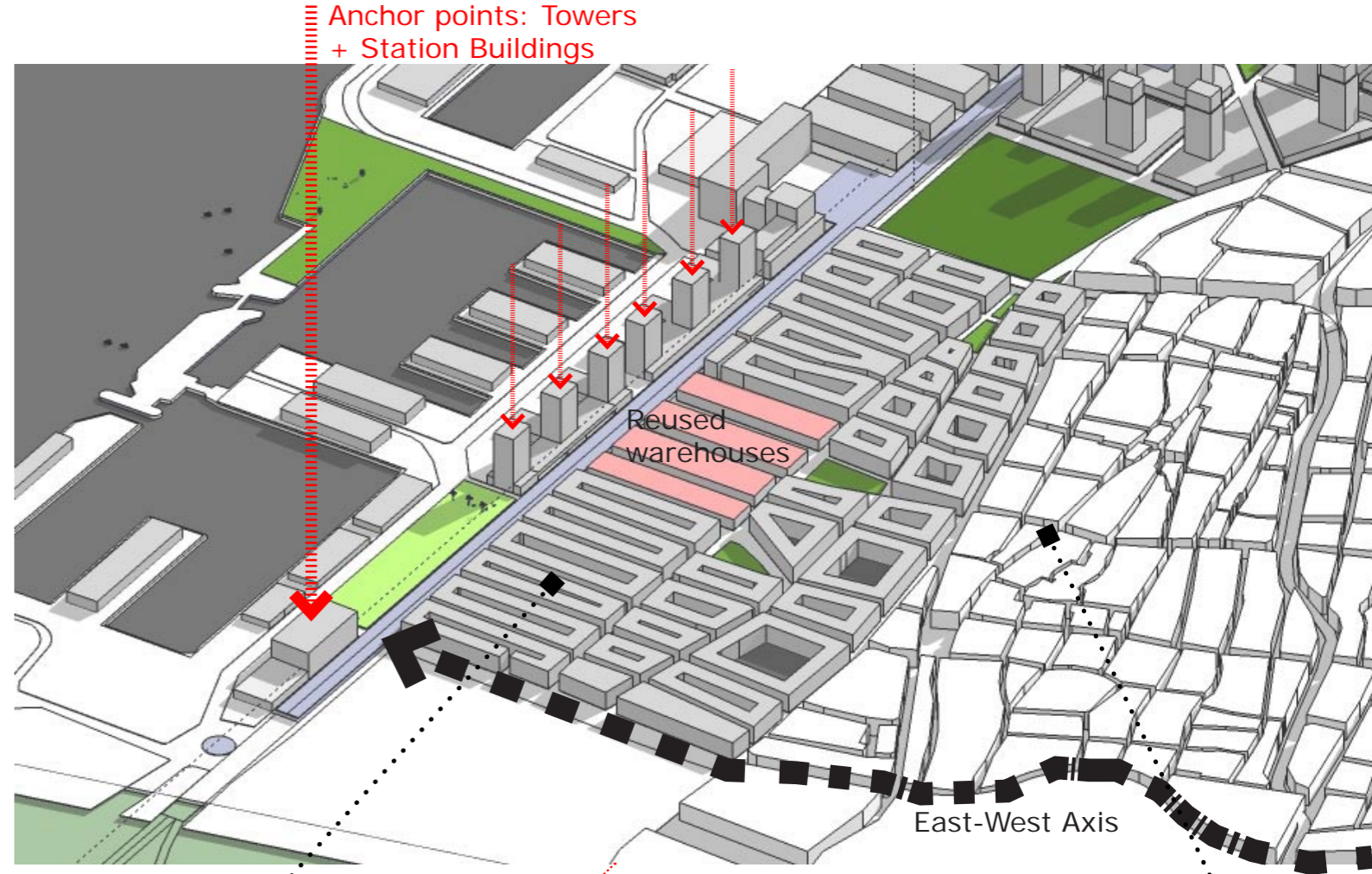
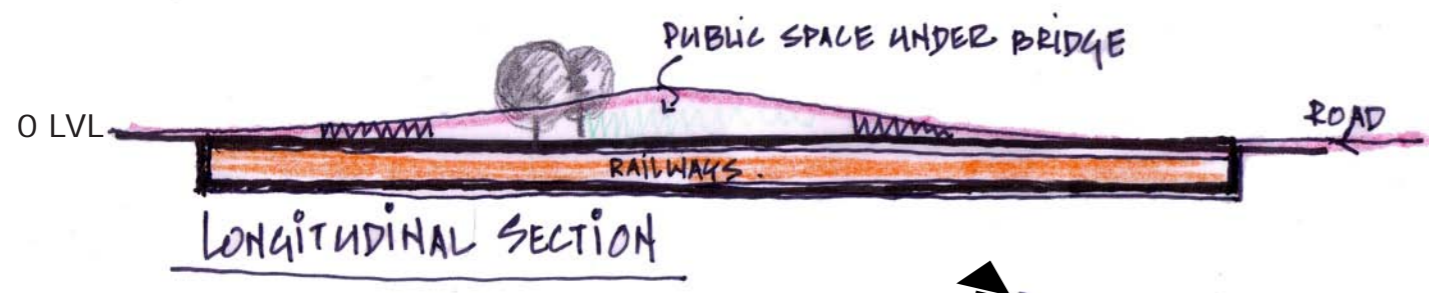








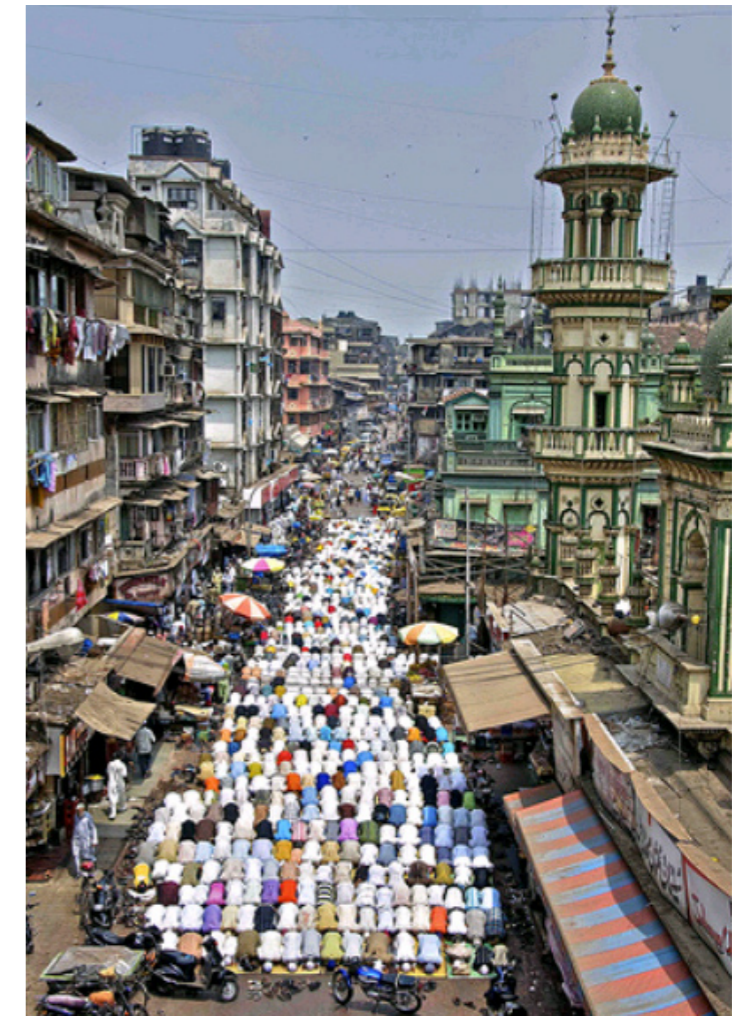


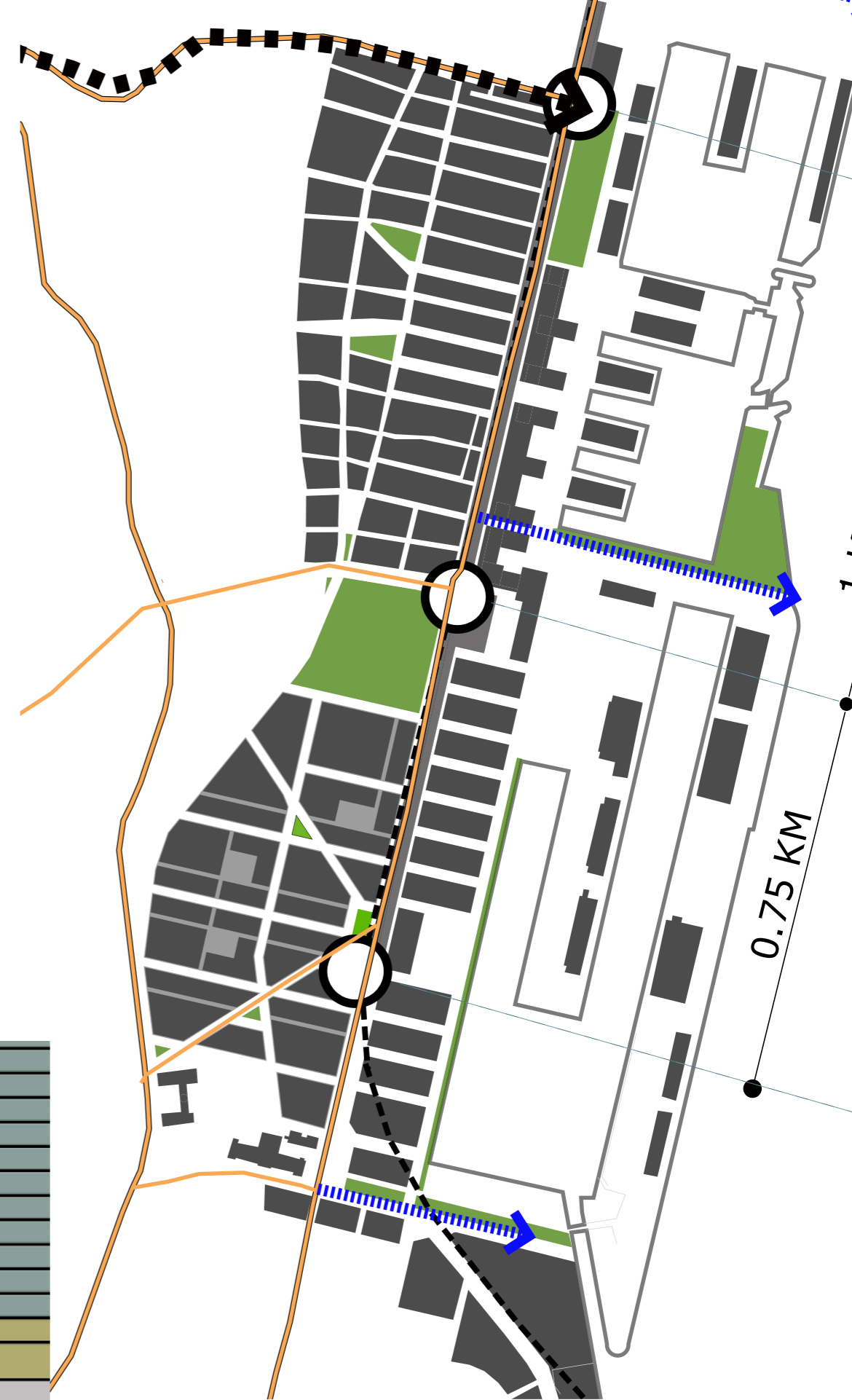
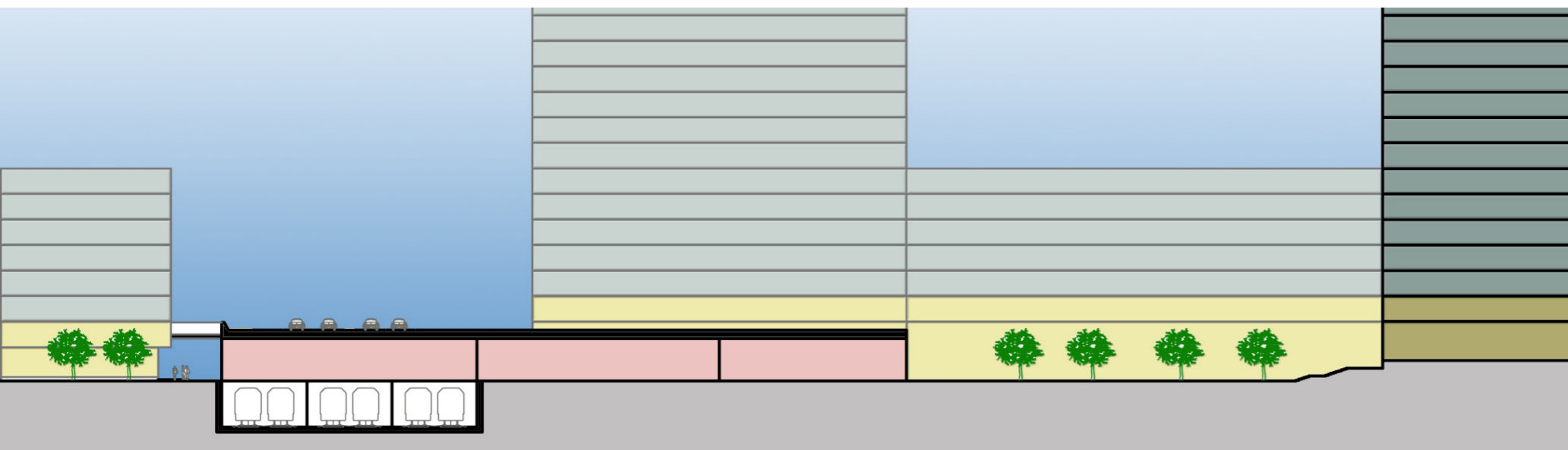
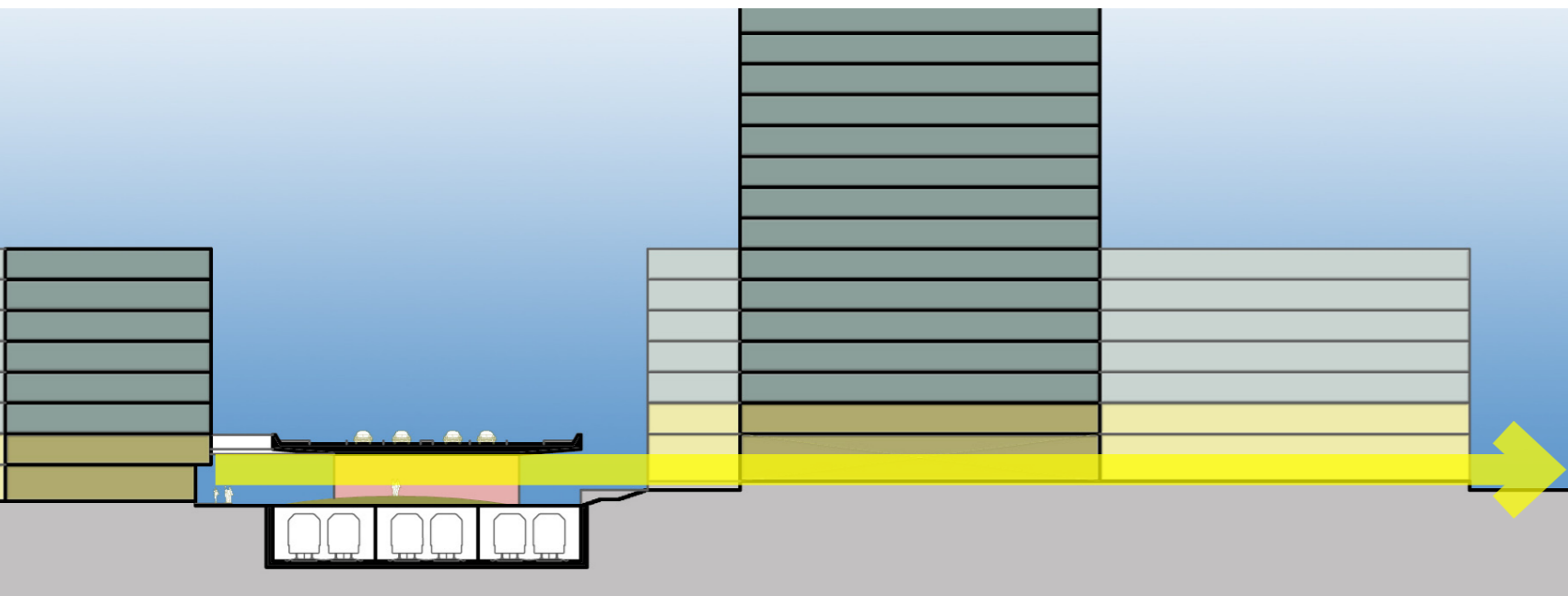
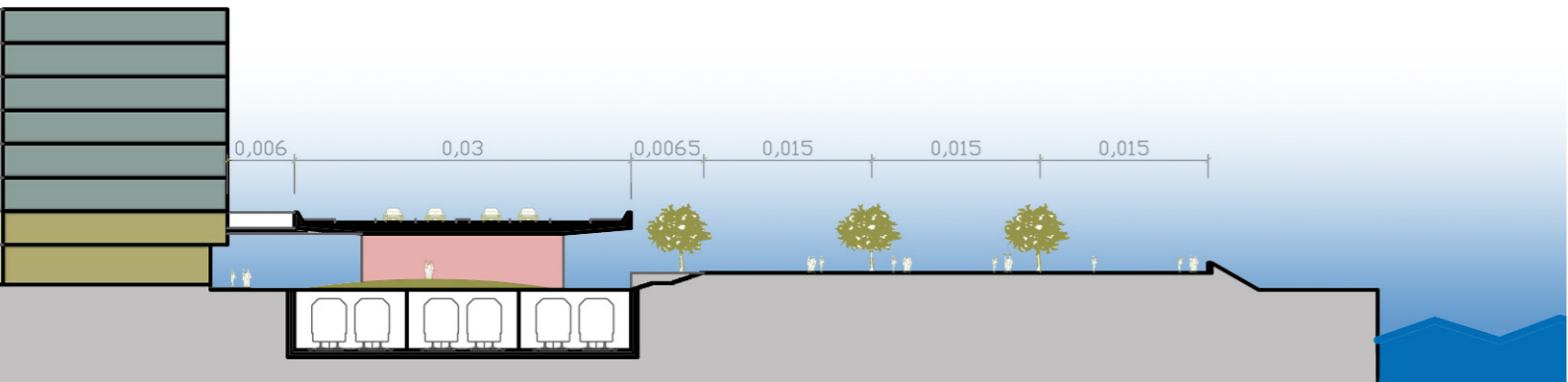


Structured street pattern ← → Unstructured street pattern
 Commercial & Retail Spaces ← → Wholesale Market area

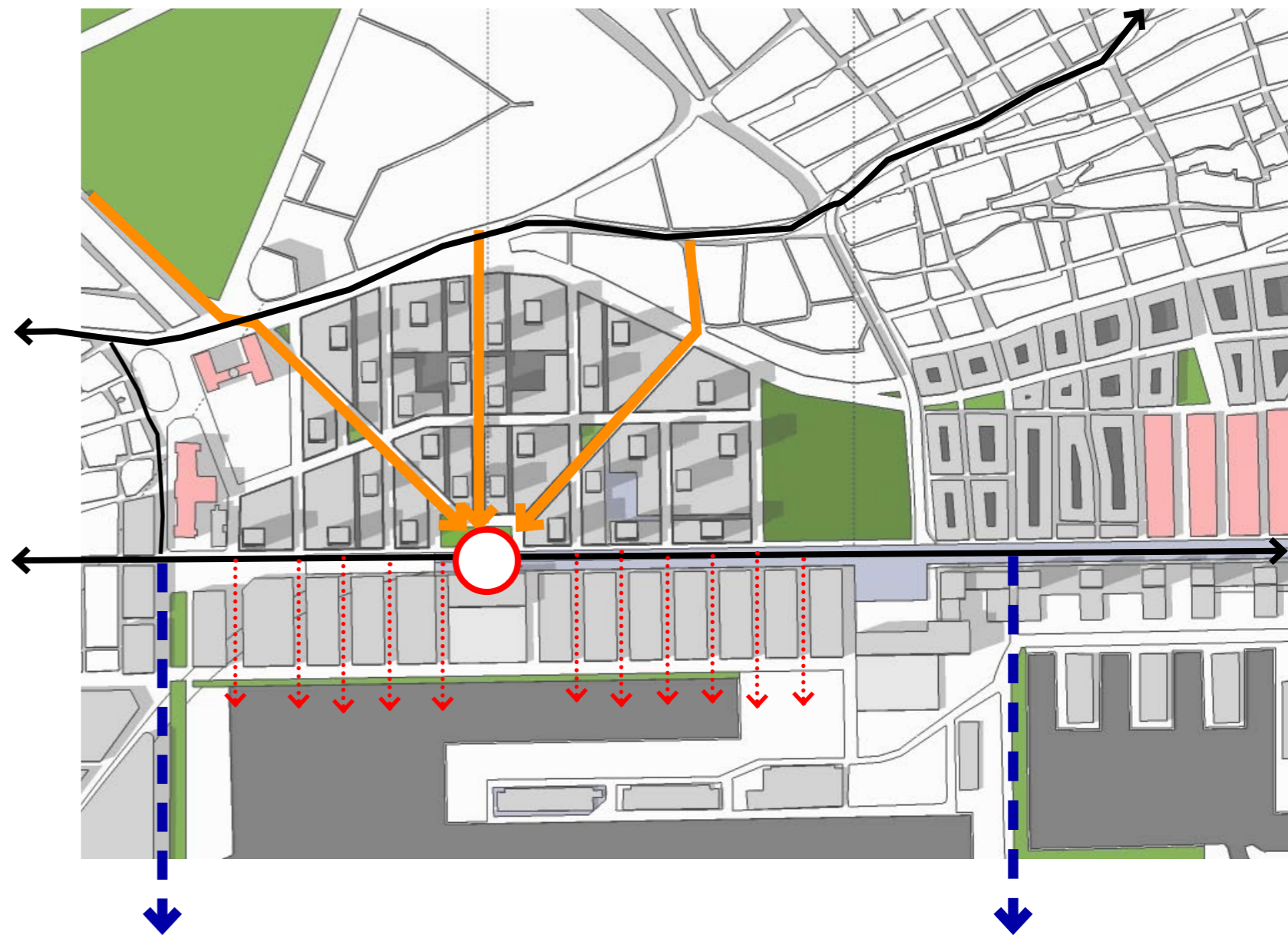
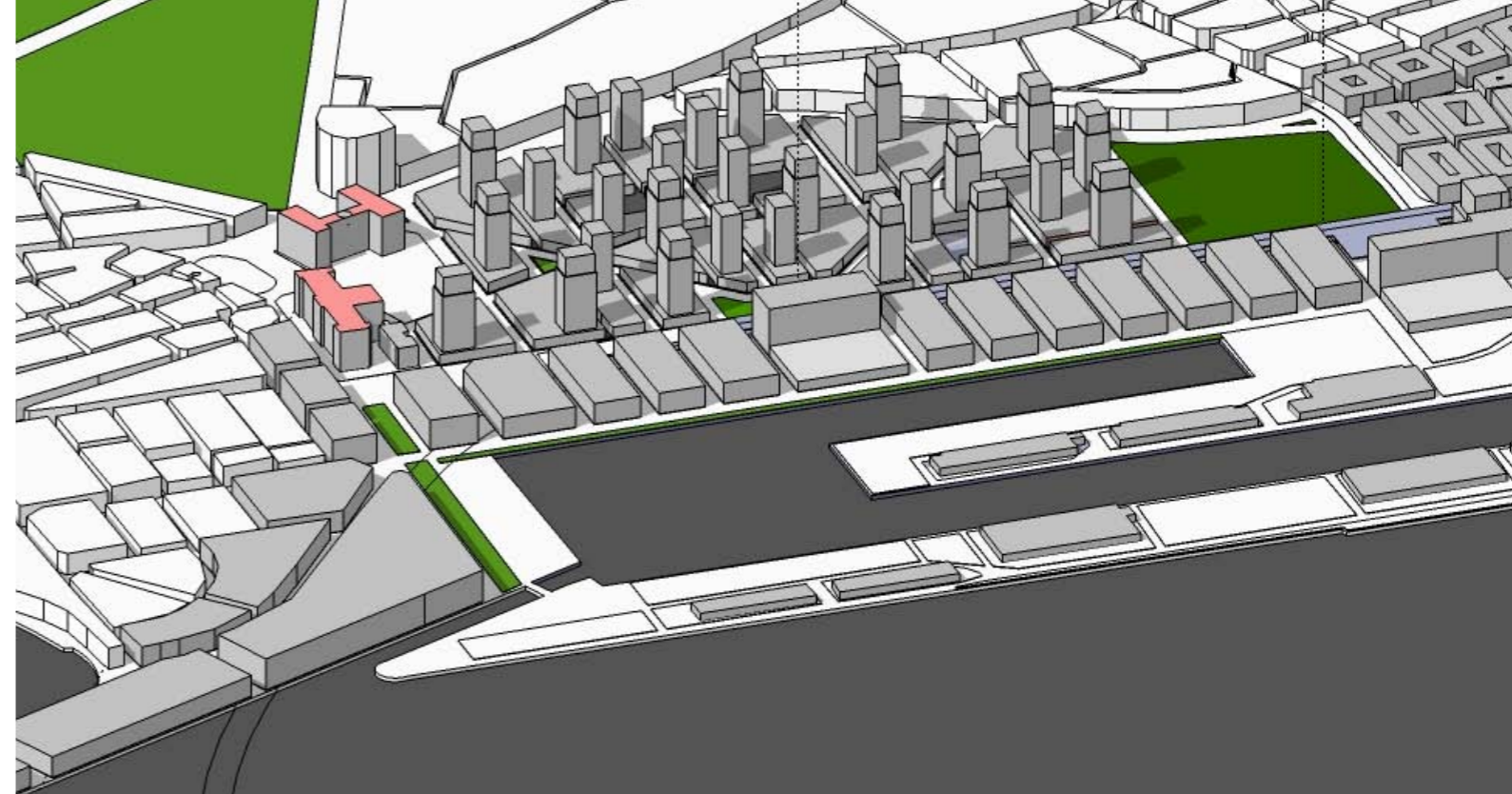


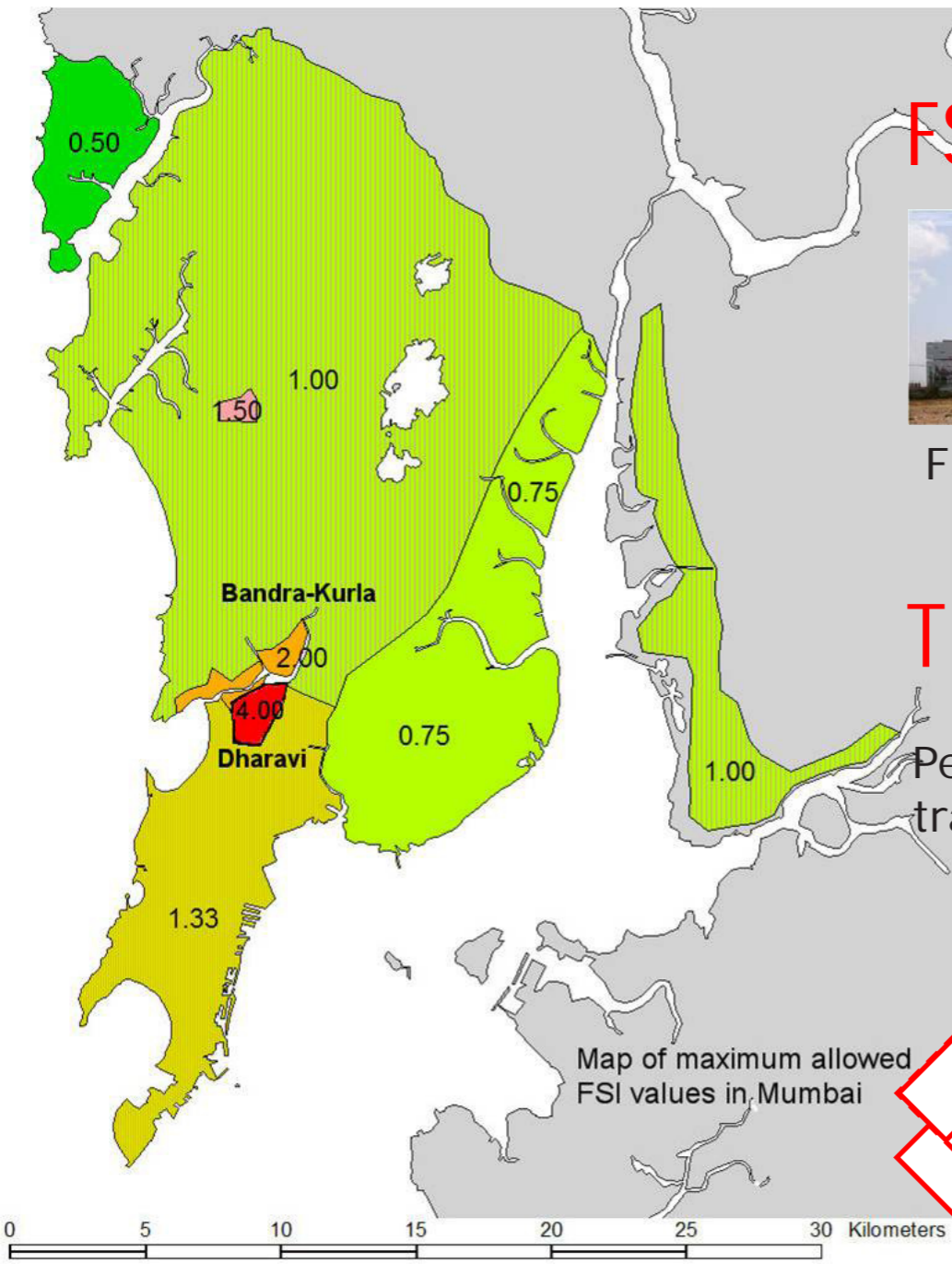
BLOCK TYPOLOGIES





BUILDING PROGRAM





FSI.. Floor Space Index



FSI in **Mumbai** is uniformly low at 1.33



FSI in **Manhattan** for instance is 15

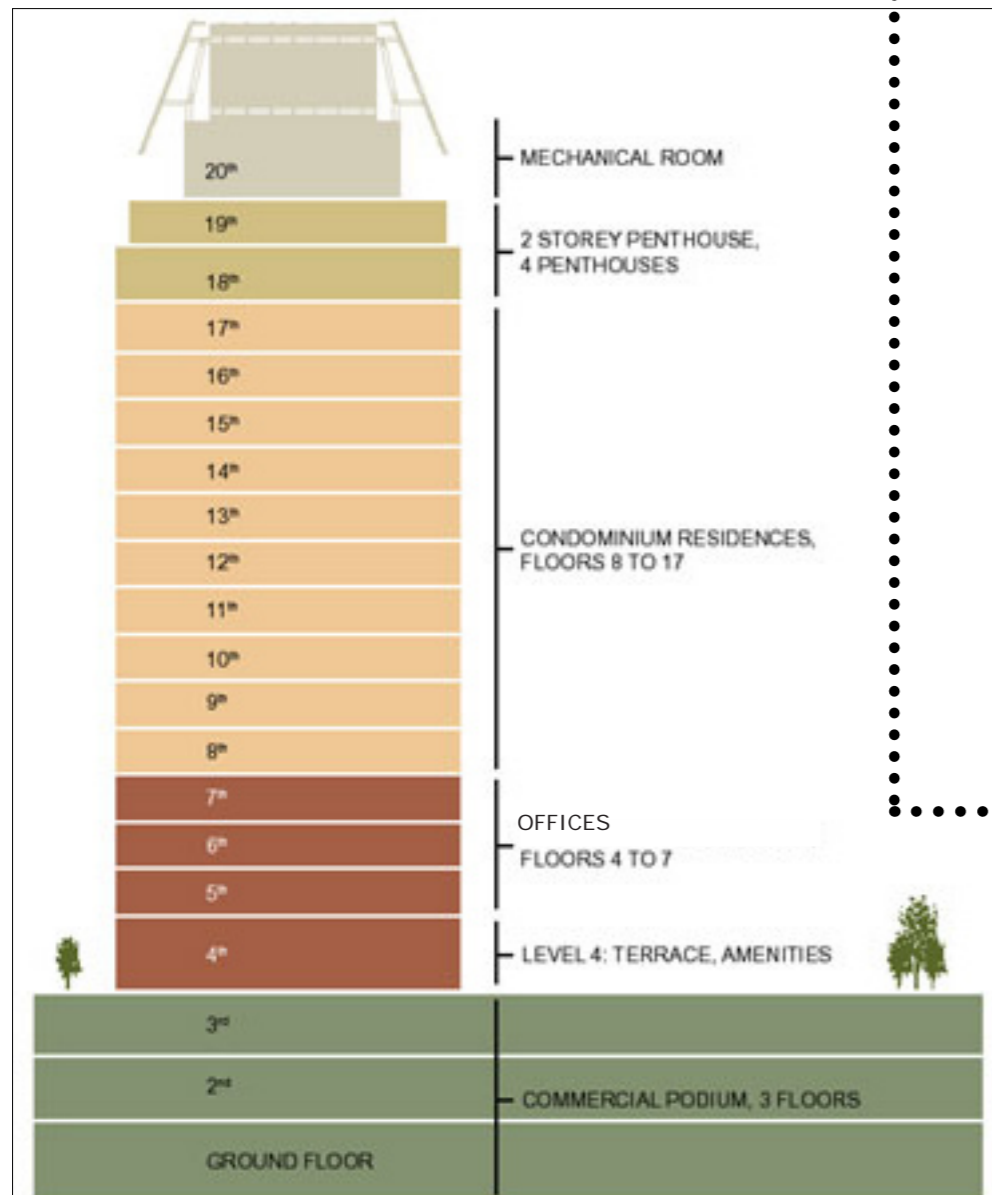
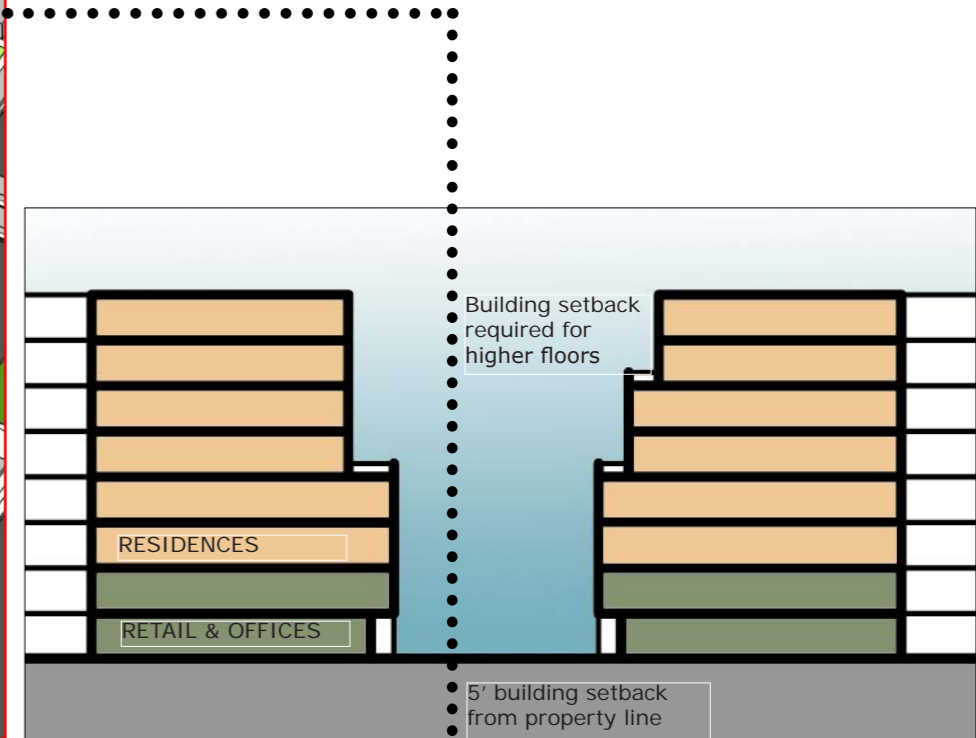
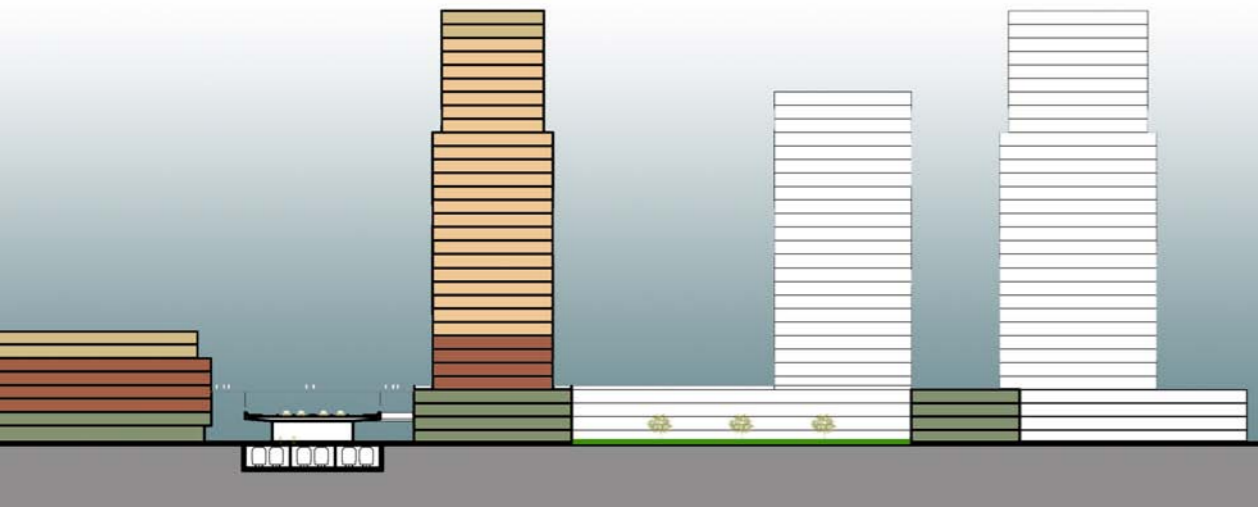
TDR.. Transfer of development rights

Permissible FSI in Mumbai can be transferred to any plot.

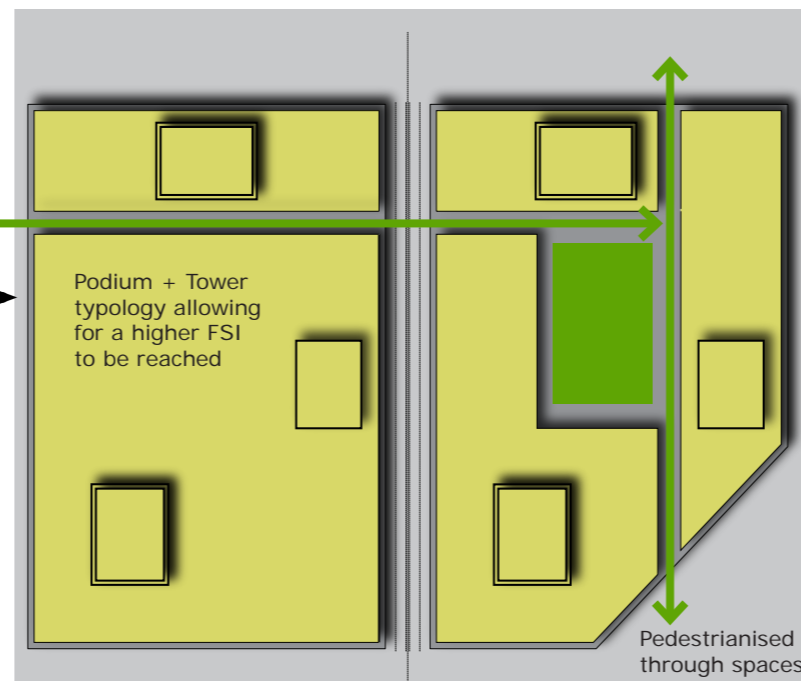
Permissible FSI in New York can be transferred to adjacent properties **only**.



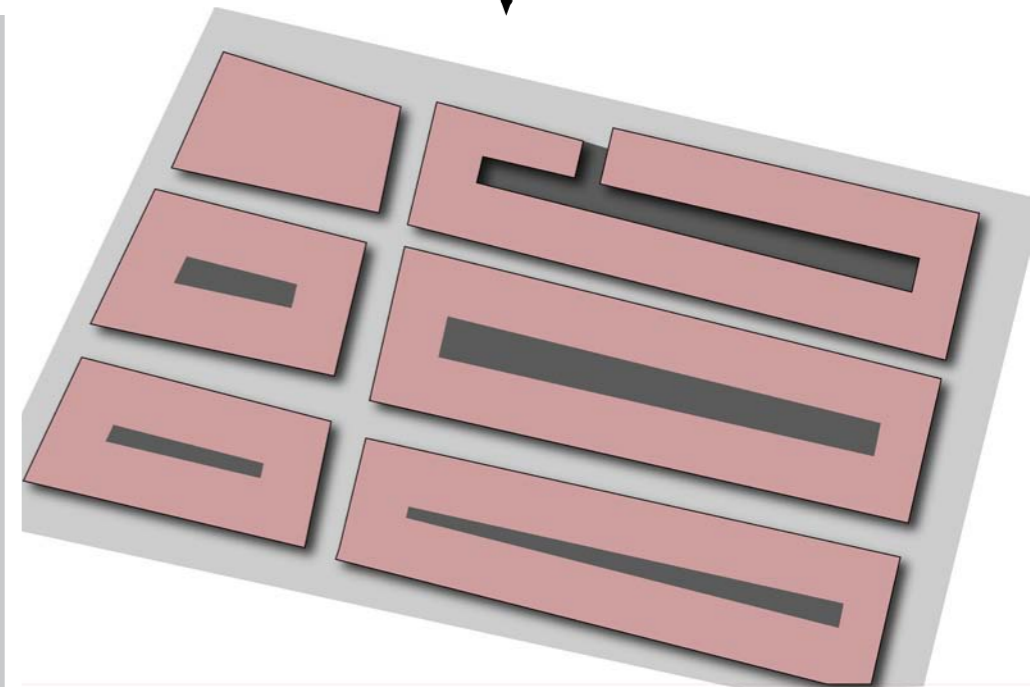
TYOLOGY & PROGRAM



BLOCK TYPOLOGY B
Larger footprint for vehicular traffic



BLOCK TYPOLOGY A
Pedestrianised blocks



BUILDING PROGRAM

NEW PROGRAM !.. mixed use

Offices	: 10,07,800 sq.m.
Commercial	: 7,21,420 sq.m.
Residential	: 16,87,800 sq.m.
Hotel	
Recreational Spaces	

Type 02:
Offices/ Commer-
cial/ Residential

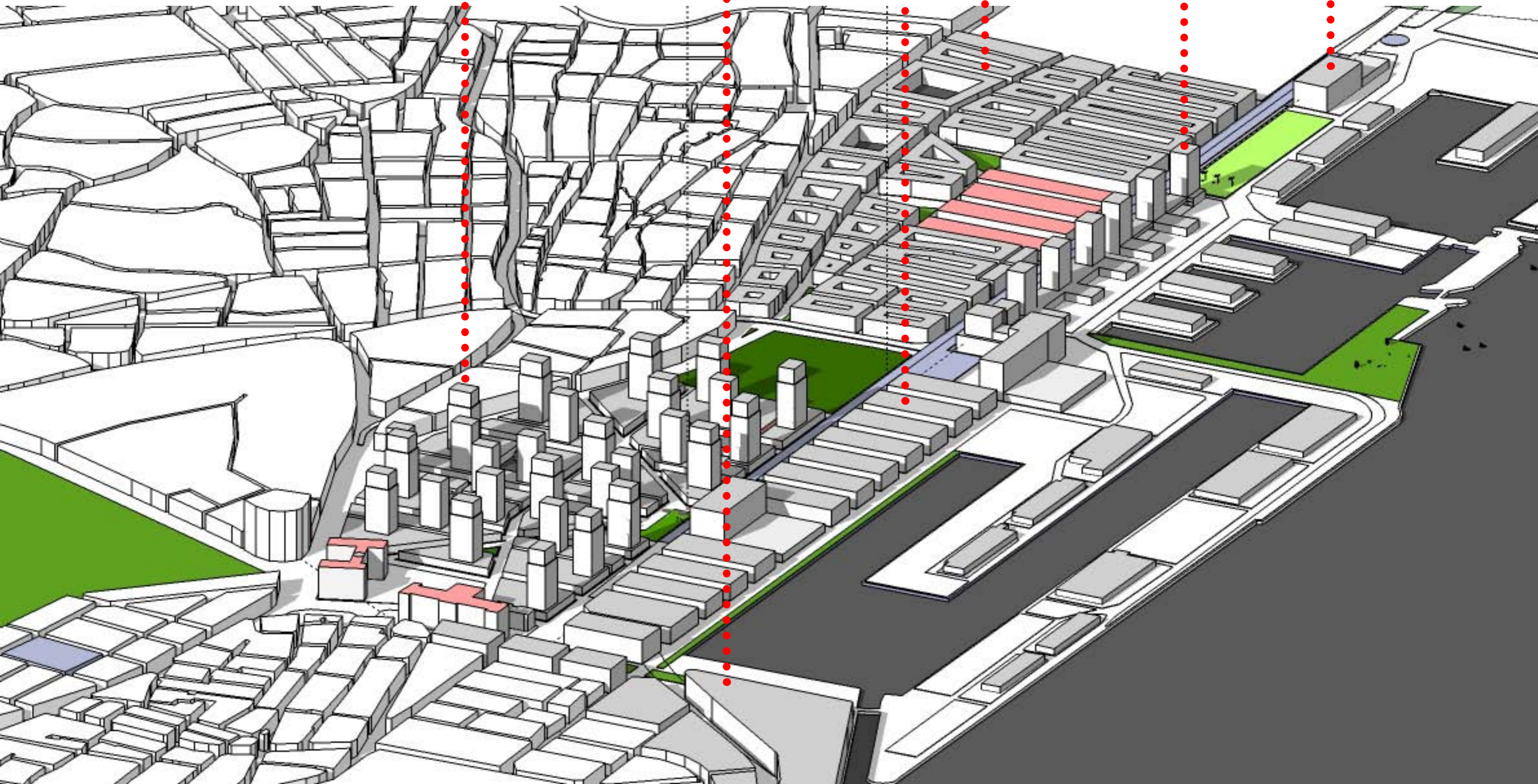
Type 06:
Hotel/ Recreation

Type 03:
Offices/ Residential

Type 01:
Commercial/ Offices/
Residential

Type 04:
Offices/ Residential

Type 05:
Station Building/
Commercial/ Offices

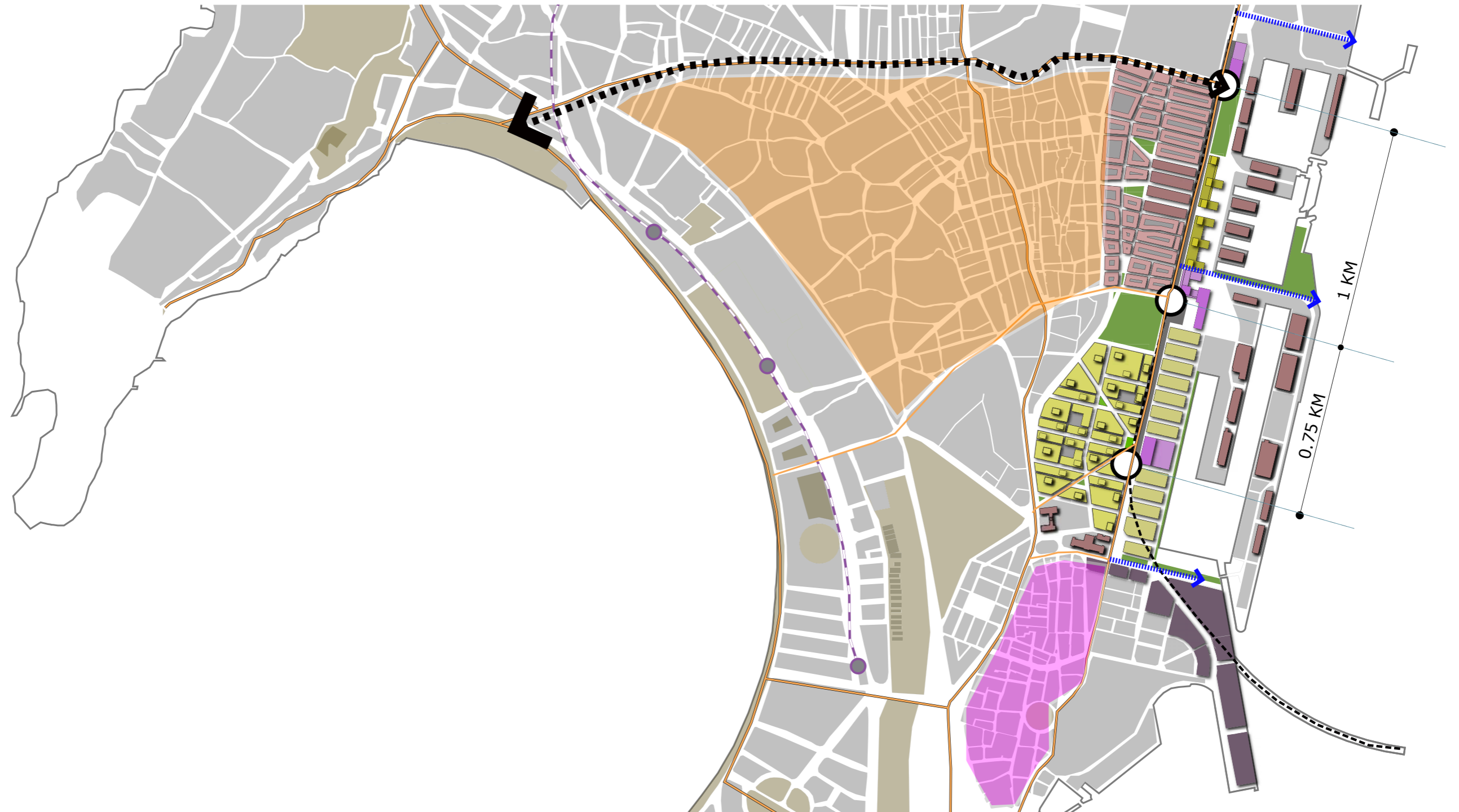


BUILDING PROGRAM

PROPOSED URBAN FABRIC

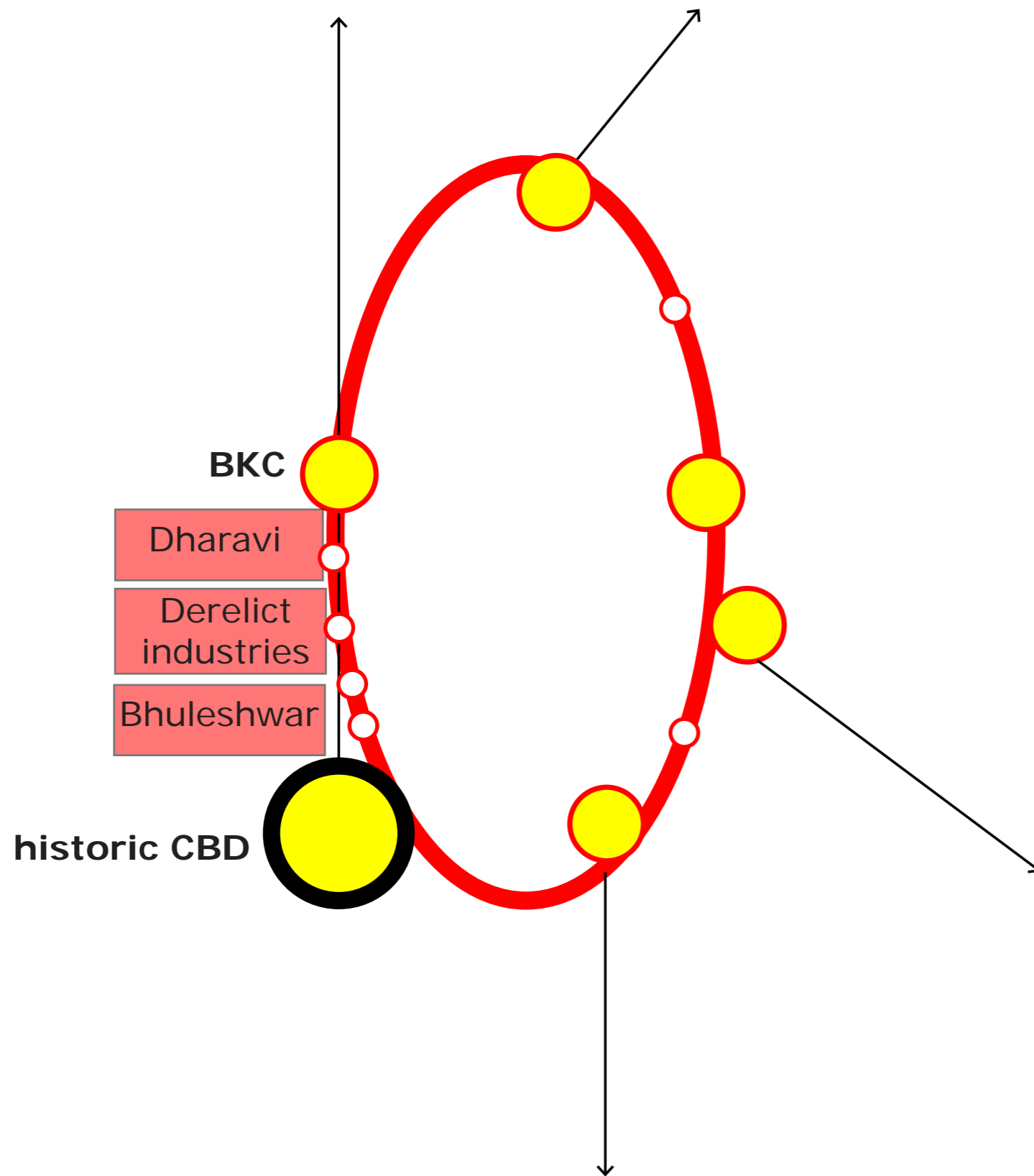


PROPOSED URBAN FABRIC



CONCLUSIONS

Reflections on the ring model of development



accessibility to CBD in South Mumbai

potential development in South Navi Mumbai

integral development of derelict port sites

development ring controls the development of the metropolis

takes pressure off island city fabric

new significance given to the critical locations like Dharavi and Bhuleshwar in the strategy.

improved public space along the development axis + improved quality of public transport- railways - direct effect on improved quality of life and developments