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Planning of Modern Tunnelling Projects
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Underground Space

Master Plan in ShenZhen China

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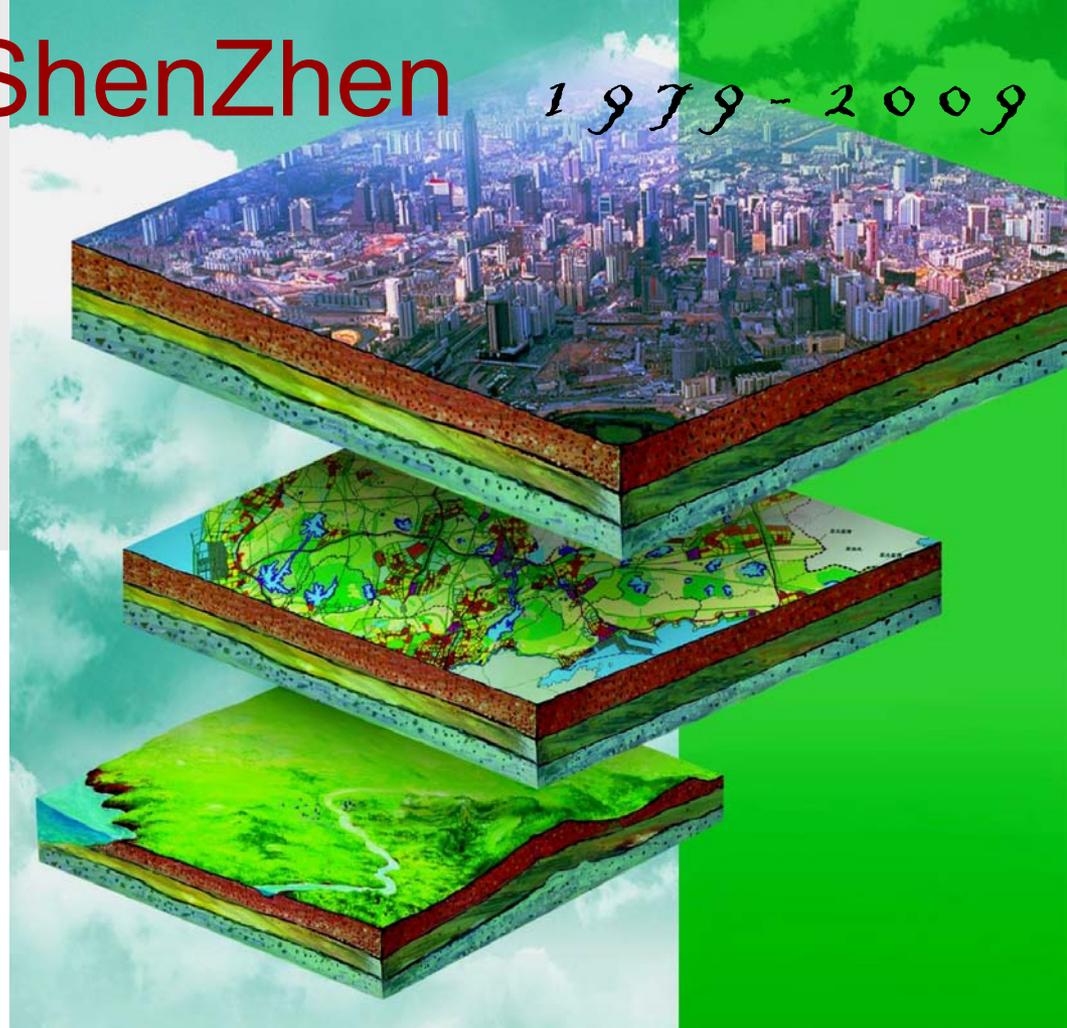
Preface

- 1 . What's the role of planning in guiding urban space development?**
- 2 . Which role the government should act ,except planning**
- 3 、 What else are needed?**

1

ShenZhen

1979 - 2009

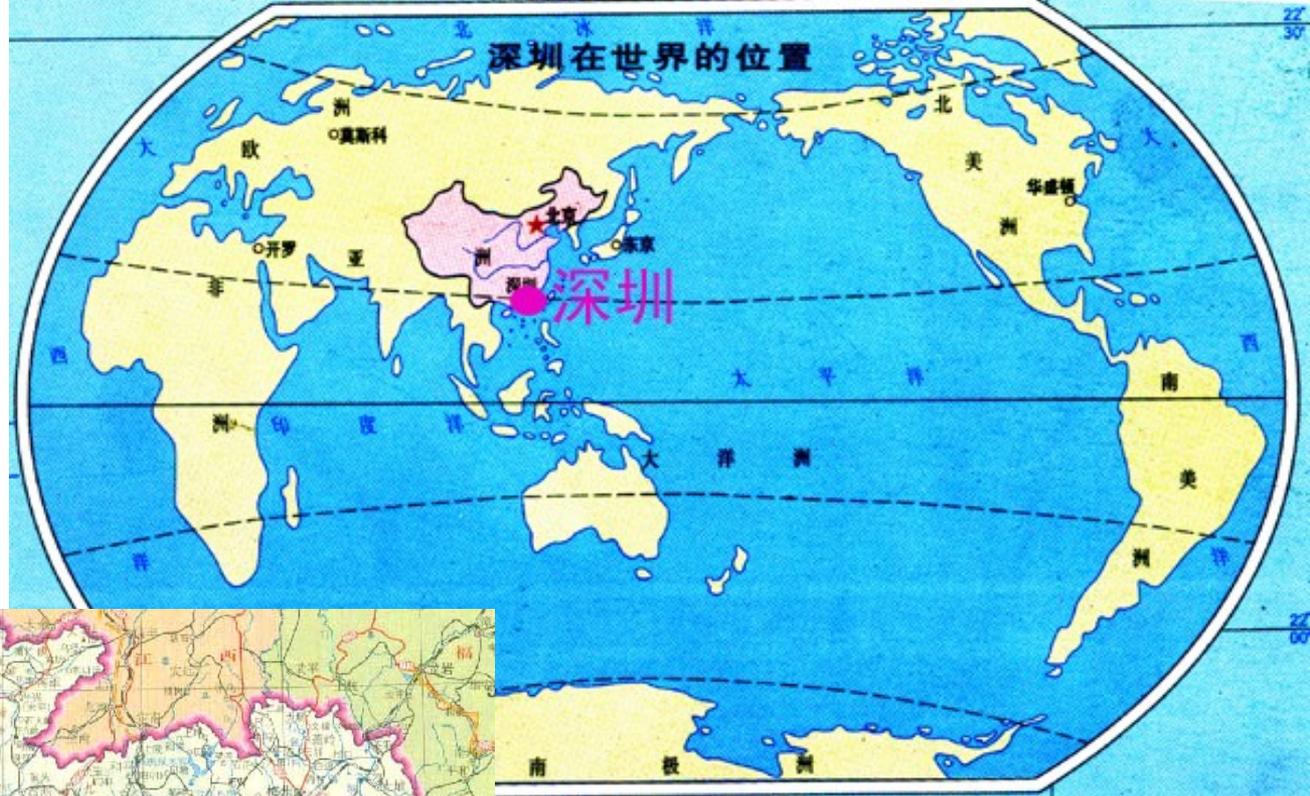


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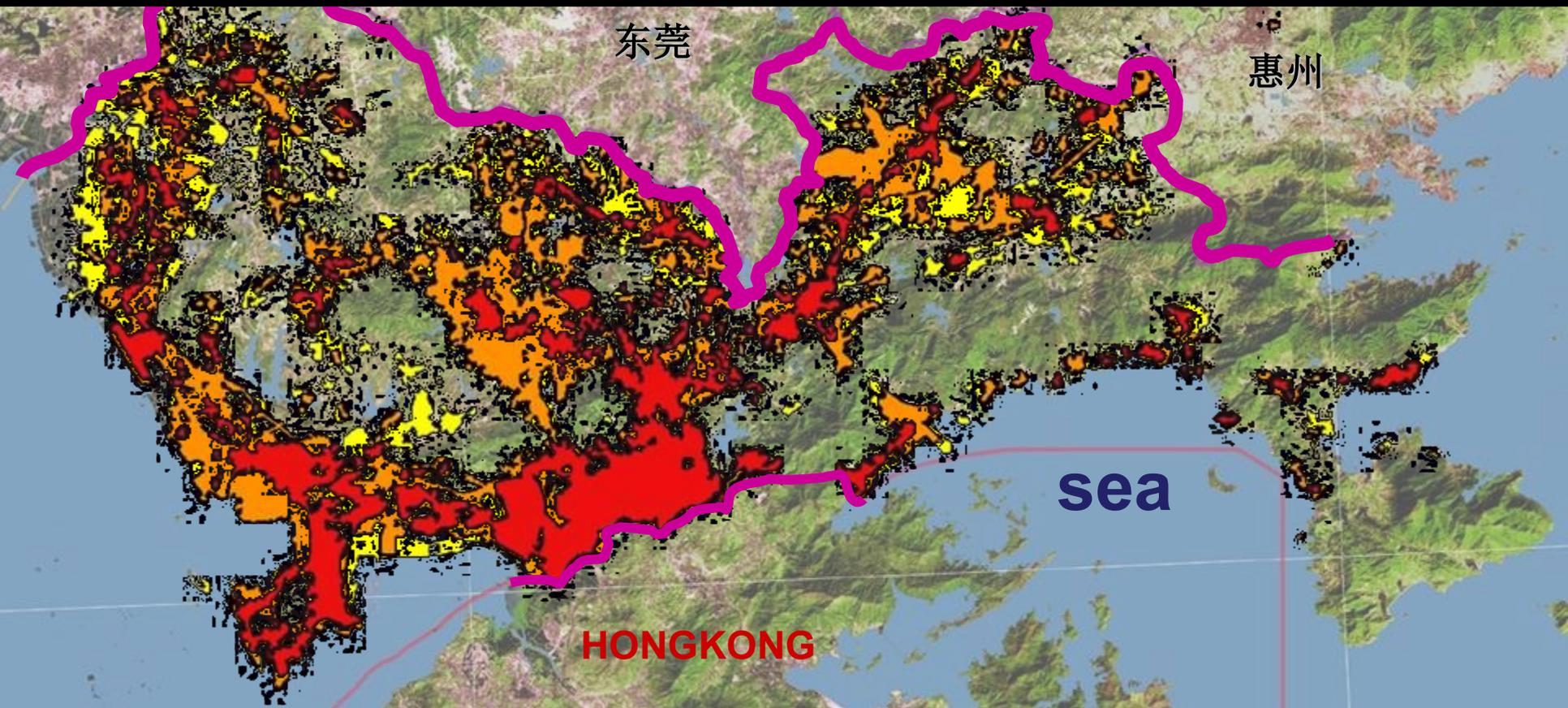
A young and fast development city!
With 30 years history

The city's position



in the world

City area is 1950KM2, About 12 million total population,
usual residences 8.88 million. GDP780 Billion RMB (85 bil
The goal of planned population : 1990 _ 600,000
1996 _ 4,400,000
2008 _ 11, 000,000



1990

1996

2002

history of the development

the first street :ShenNan Road



1979

1983

1984

1997

2008



Great changes



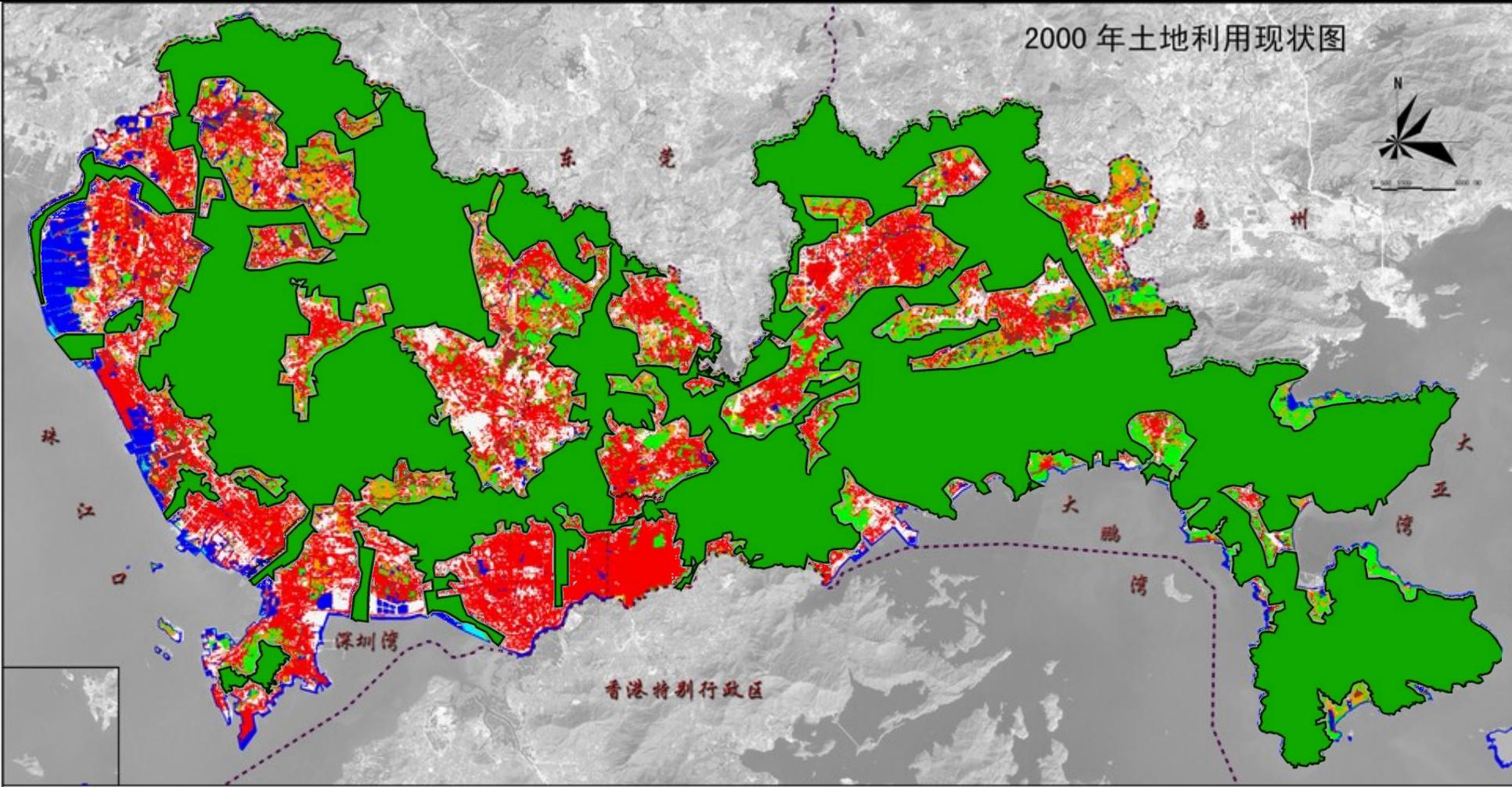
2



Characteristics and Problems

the conflict between development and land resource

Government feel large pressure



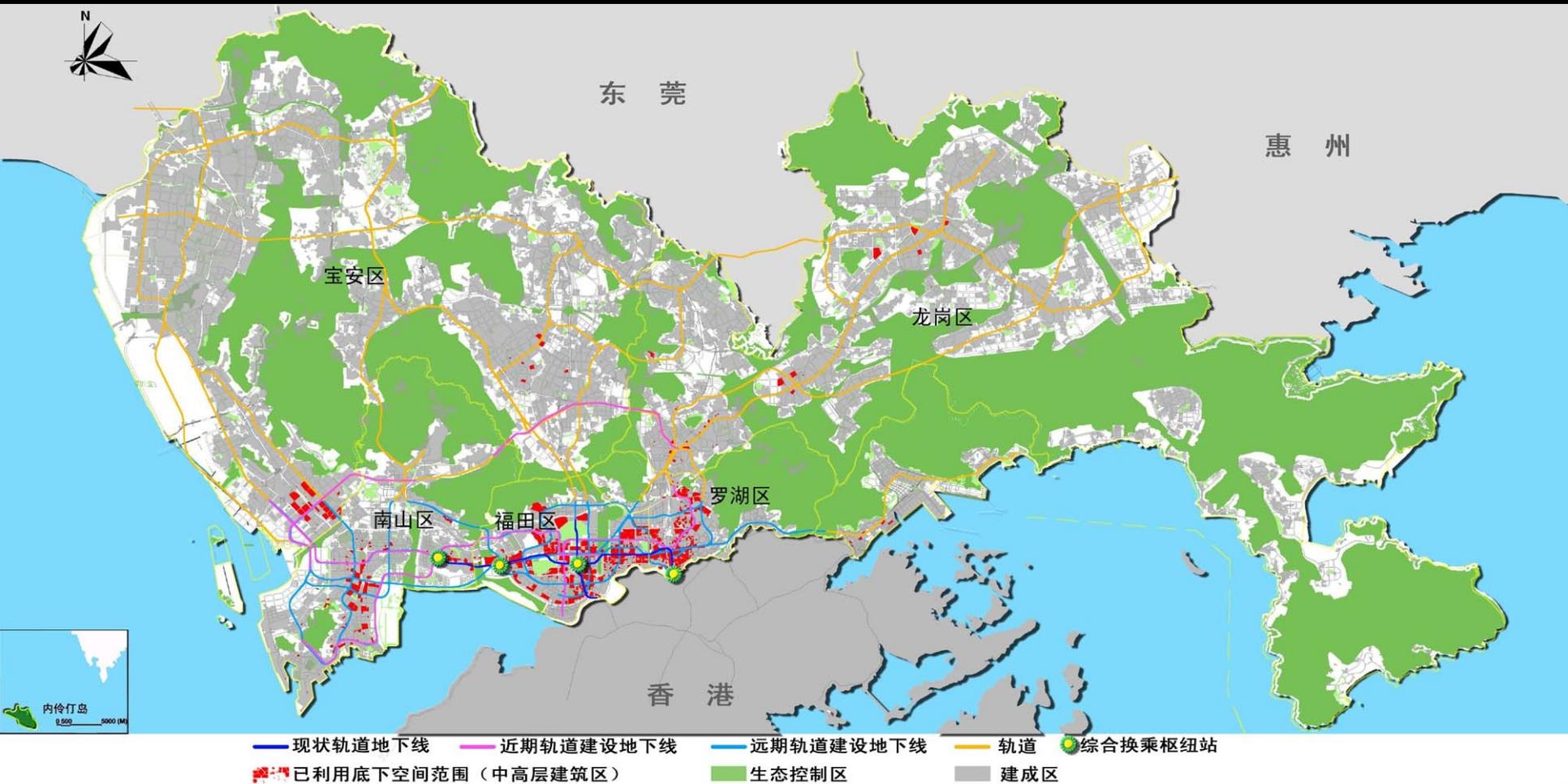
Development of the public traffic

more than 150km metro lines is being build .
 By the plan,the railway network is more than 500km in 2035.



subway caused the utilization

The red area shows underground space, near the phase I area.







The subway accelerated the reconstruction of CBD, improved the plot ratio of the areas around stations

many opportunities are created on utilizing underground space.



The government considers the following issues:

- ◆ How to use the opportunities of subway construction to realize urban regeneration, upgrade urban infrastructure, integrate urban space, and increase efficiency?**
- ◆ what principles should we follow, and what models should we choose to improve the land use more efficiently?**

3

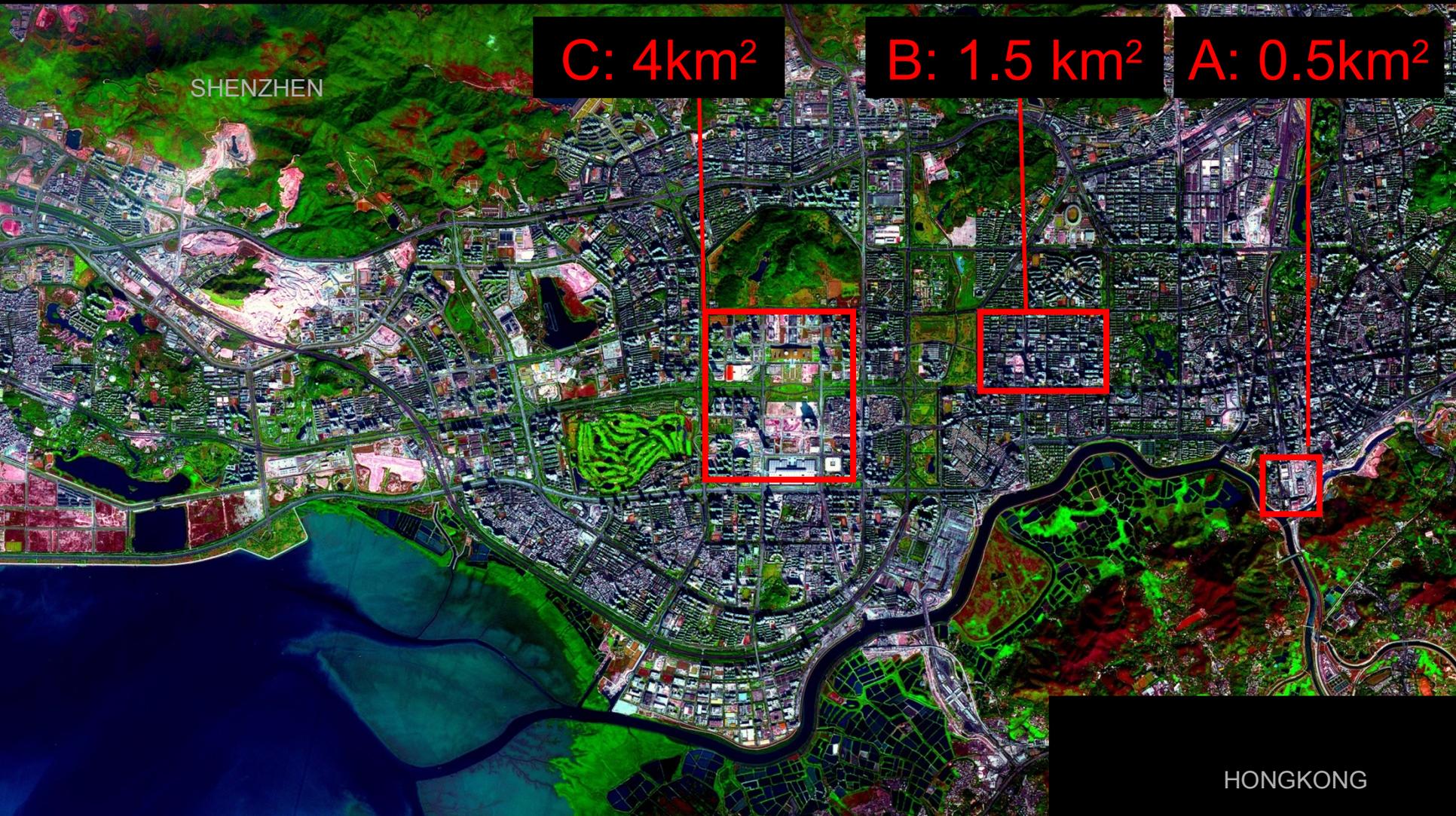
different locations
different models
Case Study



A: Comprehensive Transportation Hub (Luohu Customs Area)

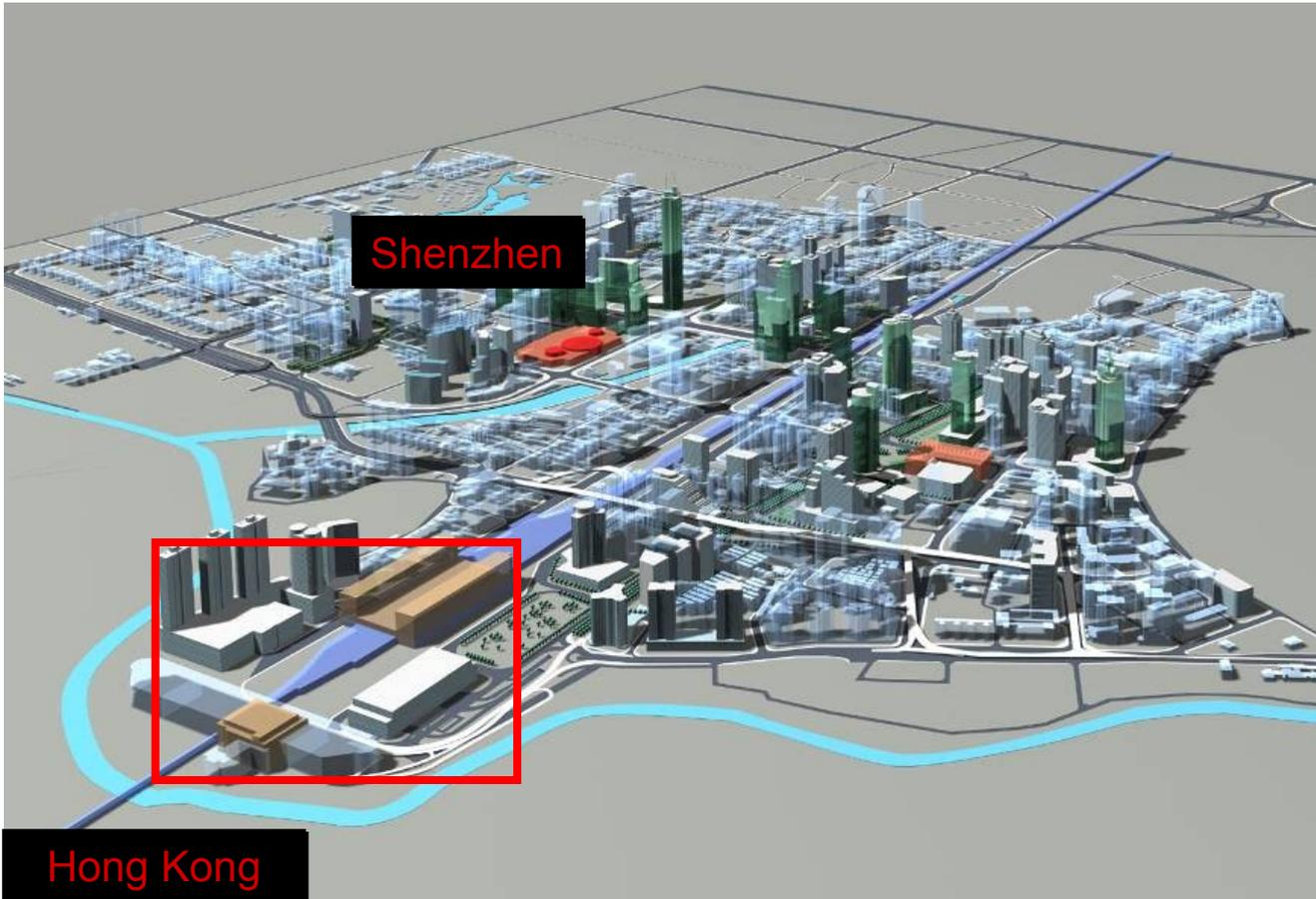
B: Commercial District (North Huaqiang District)

C: New Planned CBD (FUTIAN CBD)



Case 1: The Redevelopment of Luohu Customs Area

The Luohu customs area is the transportation hub linking Shenzhen, Hong Kong, and the mainland. It also acts as an intra-city transit node.



The Redevelopment of Luohu Customs Area

The construction of the metro provided an opportunity for improvement.





LuoHu Customs Area

In this case, Success was due to three reasons:

(1) planning priority

(2) Using subway construction as an chance

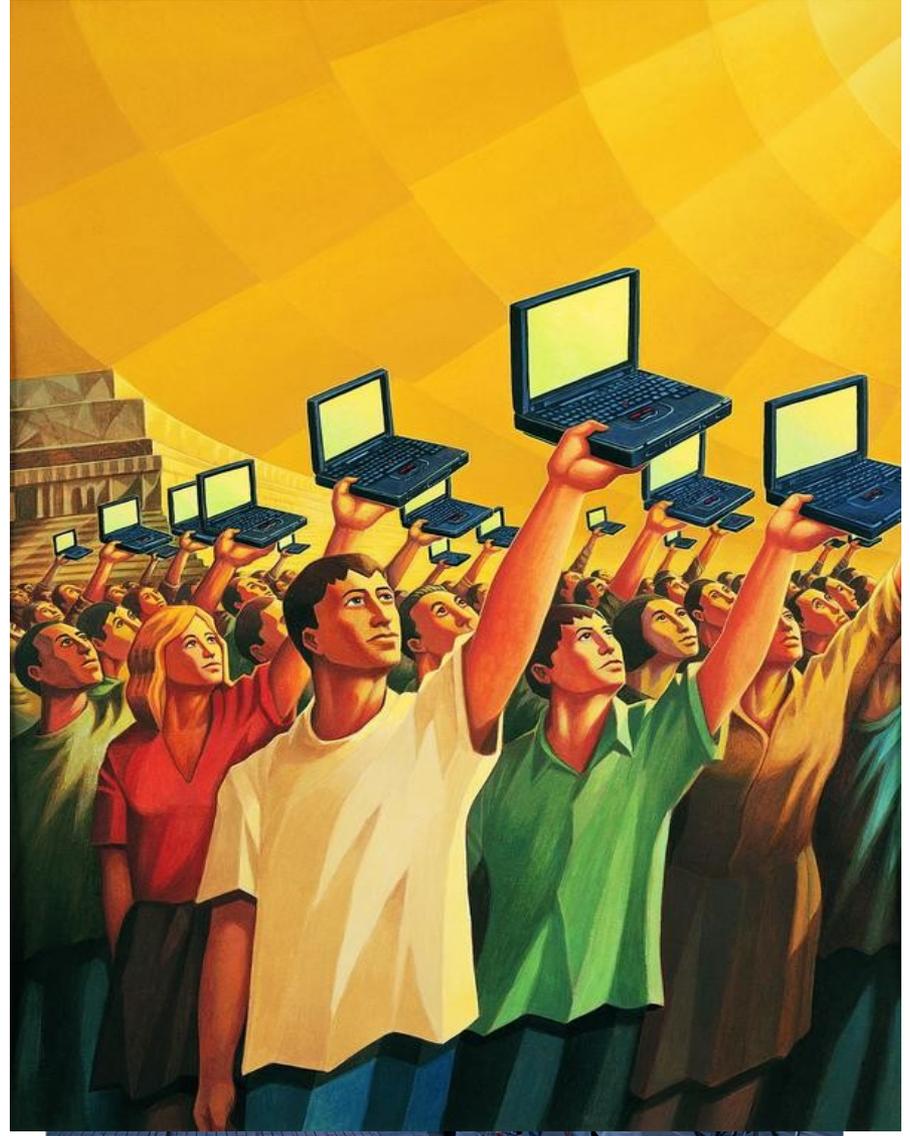
(3) Government oriented redevelopment

North Huaiqiang District, the most famous electronic street in China.

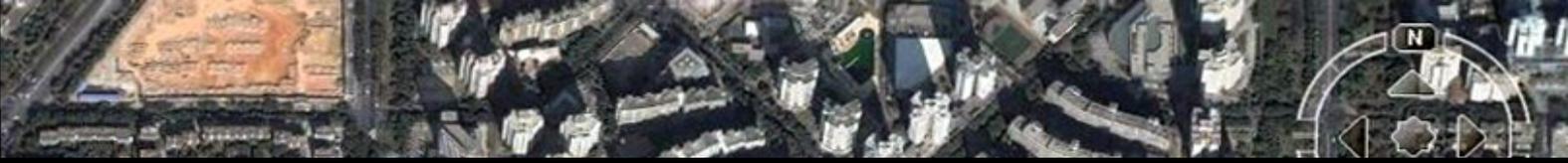
1985



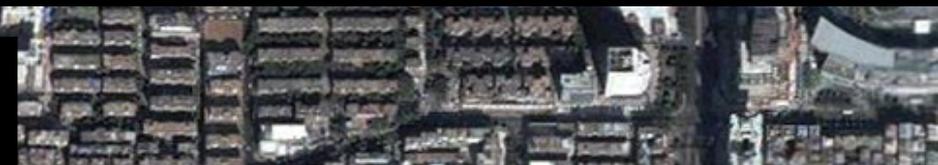
2005



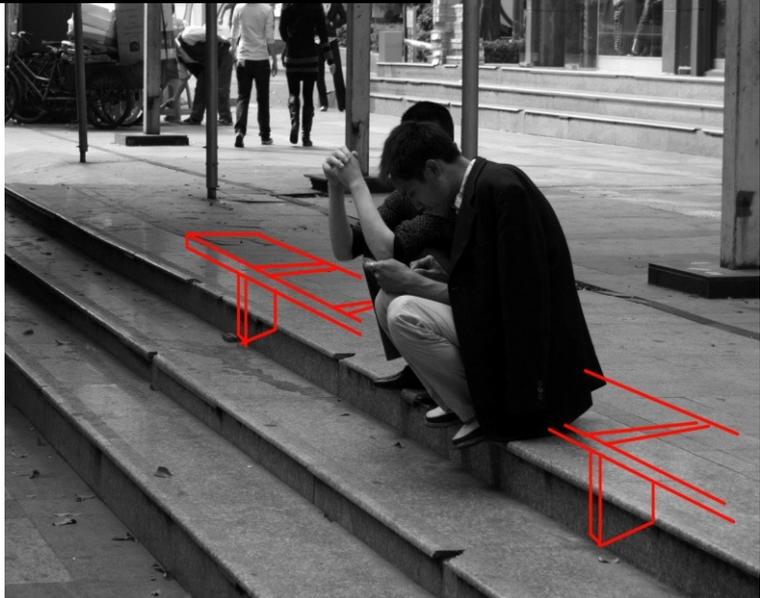
1.45km²



North Huaqiang District



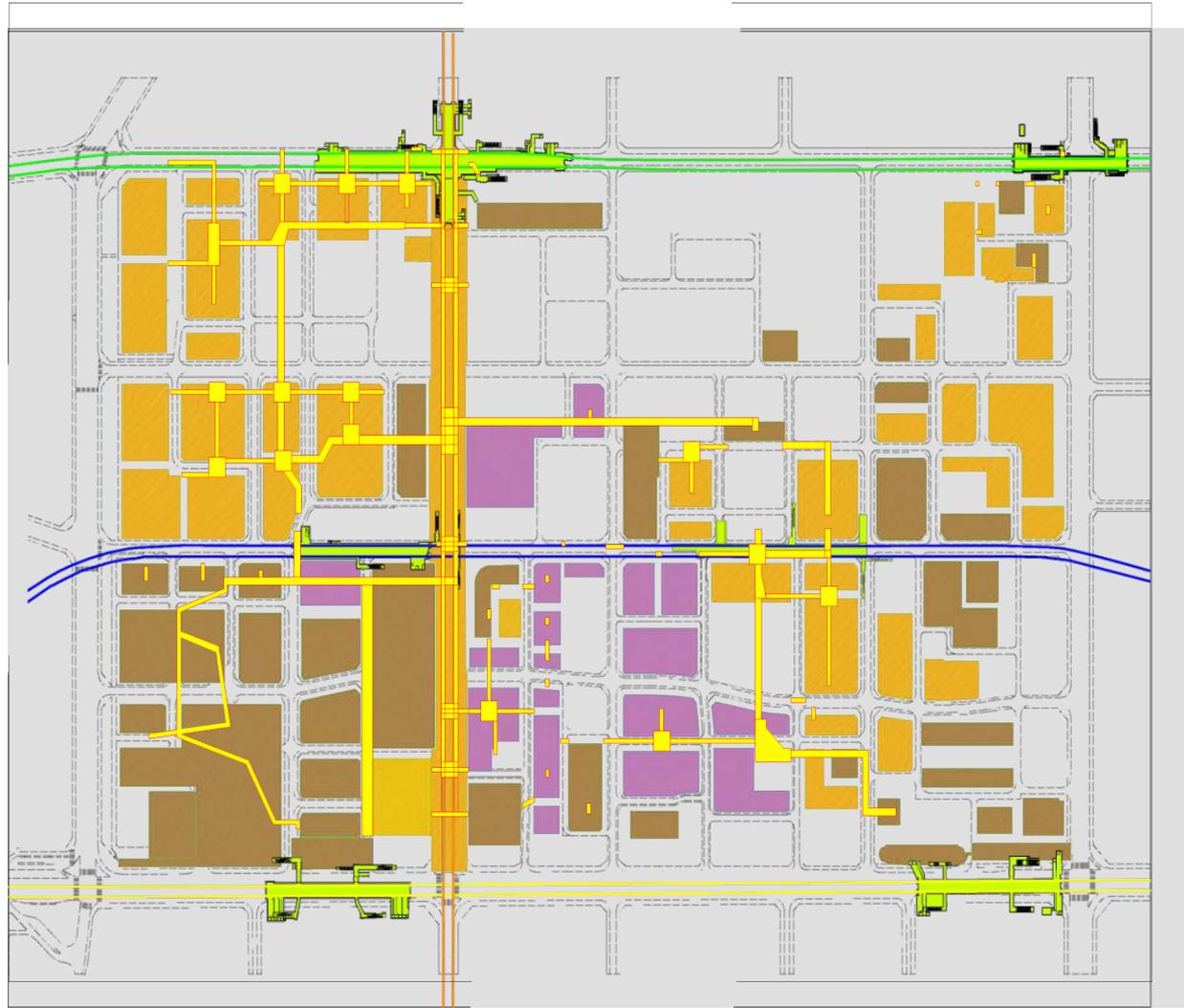
Problems

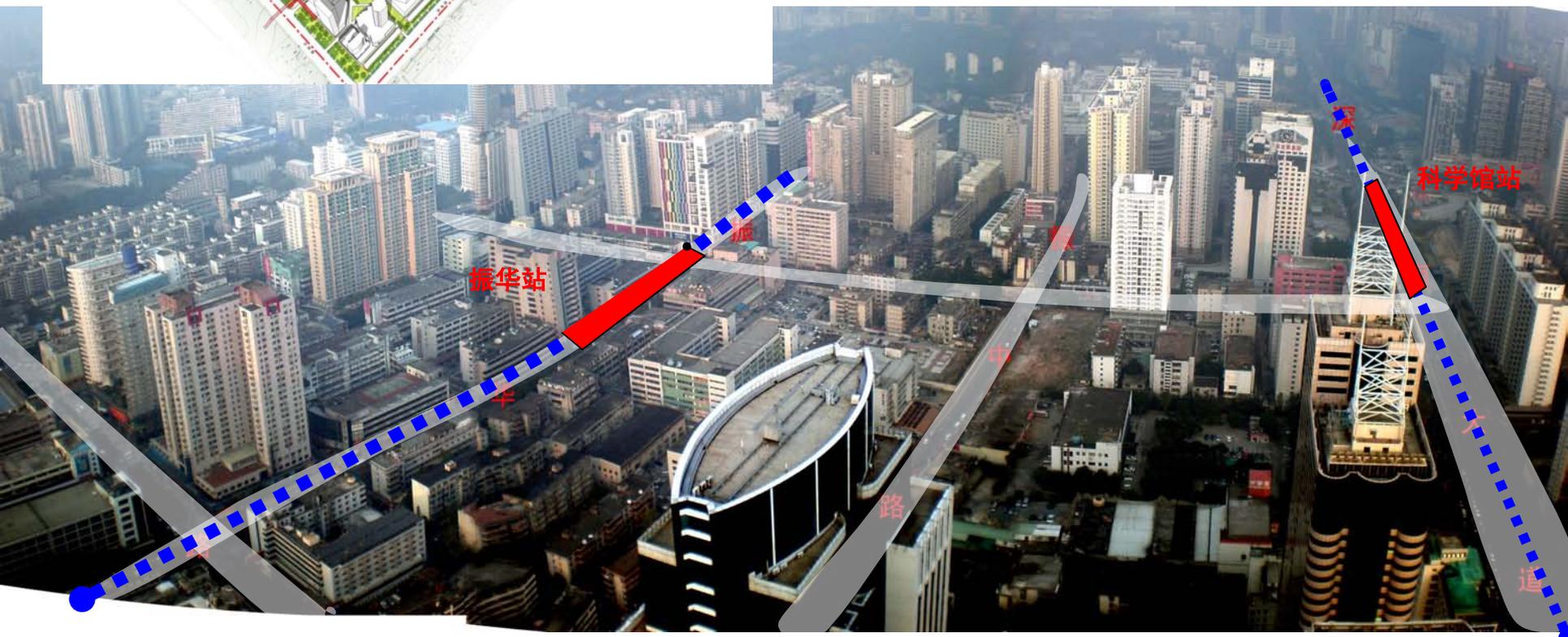


North Huaqiang District

Huaqiangbei commerce area

Case 2:





Case 3 *FUTIAN CBD*

north : government office and residential area

south : central business area

1986 concept planning

1994 land planning

1996 international consultation

1998 put forward the complex green area concept at middle axes

1999 Urban design and underground space planning

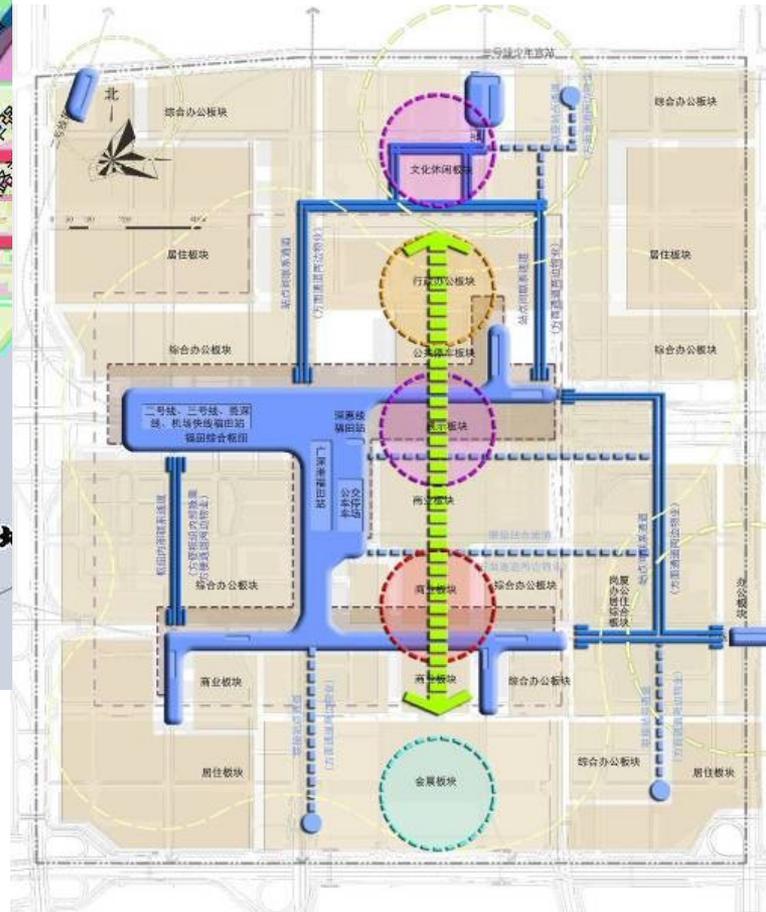
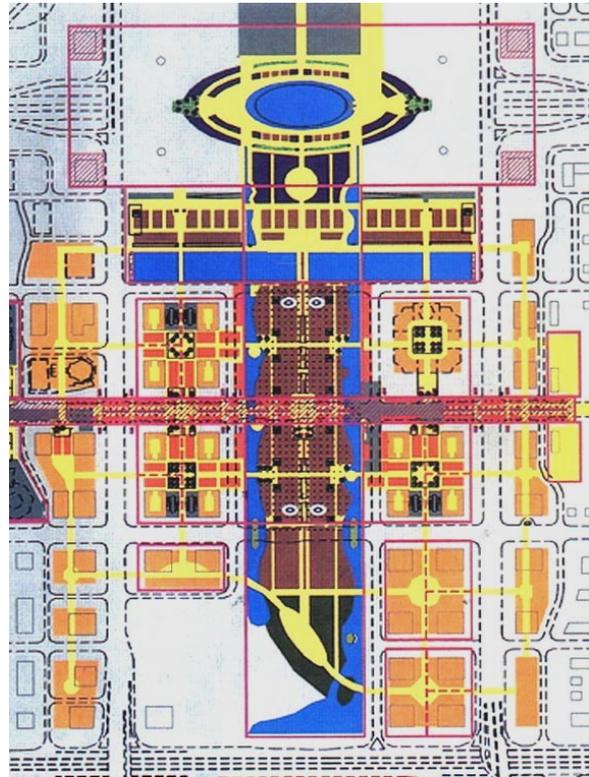
2001 particular block design



No agreement on each stakeholder is made, which caused the underground spaces are segment, although all underground space would be well-connected in the plan



A space network consisted by subway lines: using stations as nodes and connecting the up-underground space.



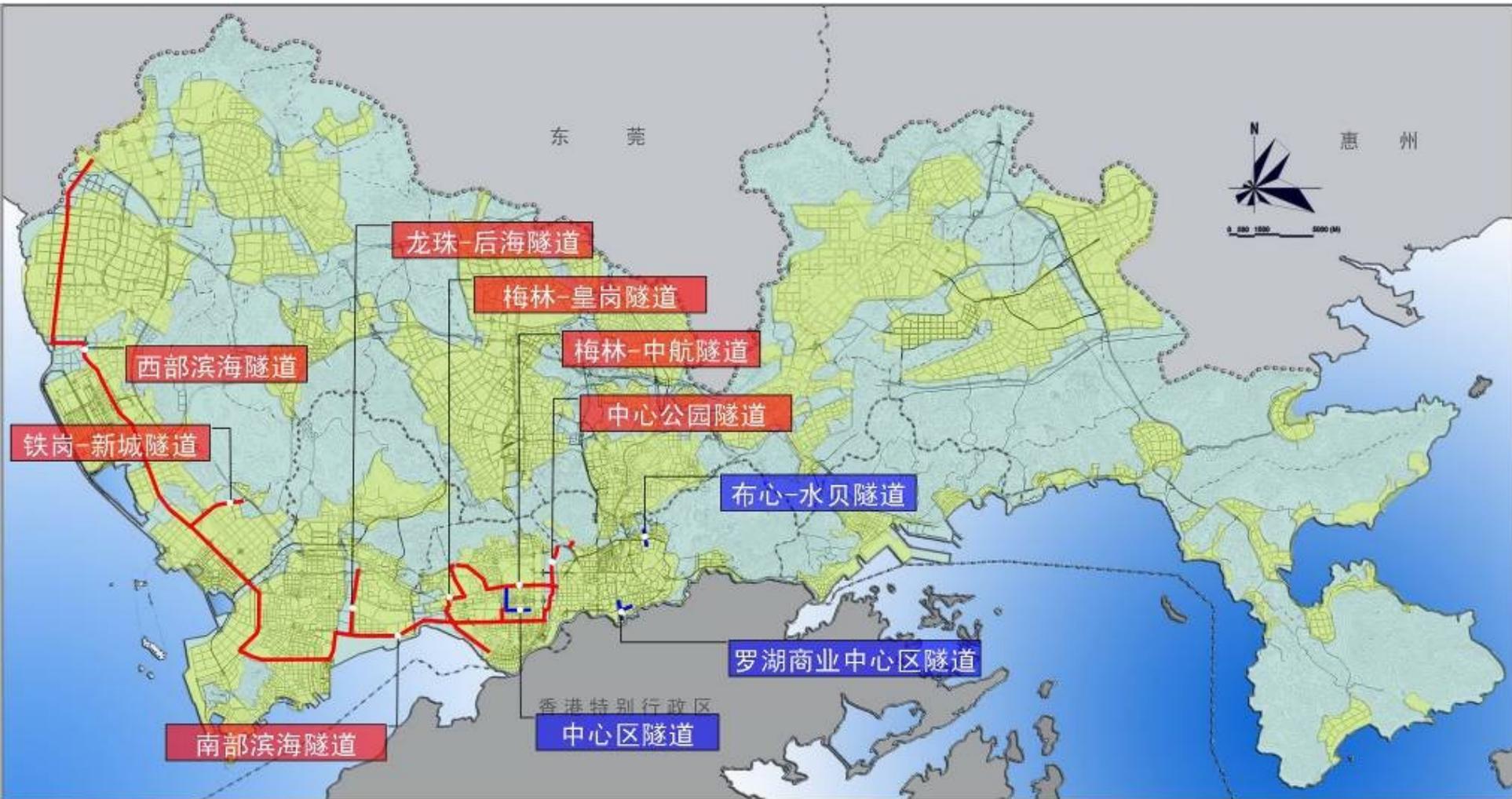
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Strategies and conclusion

Principles:

1.A Good Long-term Plan



图例



现状电缆隧道



规划电缆隧道

Recent plan, completed in 2011 before.

At present, five subway lines, two lines of national railways, one inter-city railway, six integrated hub, with 11 municipal subway construction projects simultaneously, with a total of about 263 kilometers, a total investment of 100 billion RMB.



2 Use the opportunities of subway construction



metro line depot property development site



integrated transport hub



Research and plan the land use near the station, surface and underground

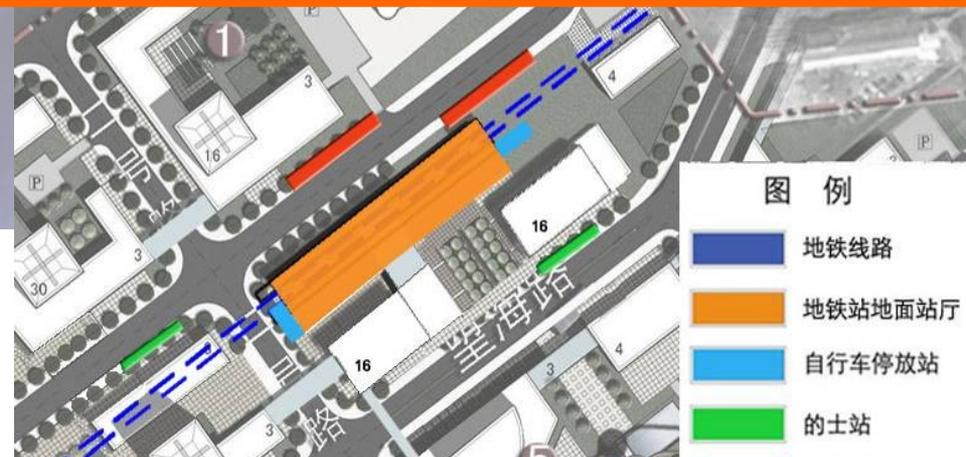


The Donggang station, use the underground space connect the building near the station

The sea world station, the metro plan cause the redevelopment



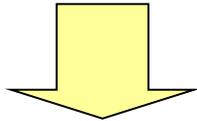
- 图例**
- 地下商业空间
 - 地下停车空间
 - 地下空间人行出入口
 - 地下空间车行出入口



- 图例**
- 地铁线路
 - 地铁站地面站厅
 - 自行车停放站
 - 的士站
 - 公交车站

3. Public policy: contract among stakeholders

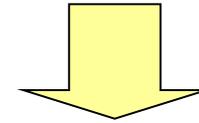
Government:
Attempted to plan
everything



Inefficiencies

VS

The Market:
Uncontrolled growth



Mess

Thus, Public Policy now needs to balance the energy of the market and the intervention of the government

conclusion

1 、 The underground development is a long , **comprehensive 、 cooperative work.**
Planning is the important guide.

2 、 The government should play the main role in the establishment of the underground infrastructure network (Metro/underground roads etc.)

3 、 law and public policy is the key for success .

work is in progress ...



THANKS

for your attention

Welcome to shenzhen!