"Beijing 2049", a Long-term development prospective

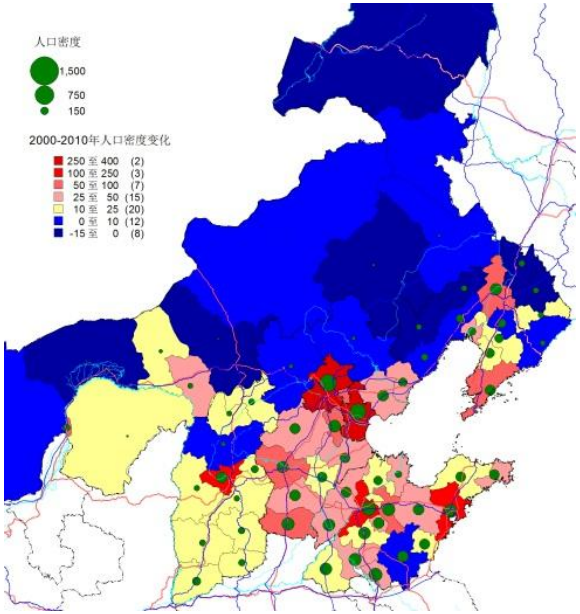
1 "Beijing 2049“: a prospective of long-term development trends

2 "Beijing 2049“: strategic proposals and solutions

1 "Beijing 2049 “ a prospective of long-term development trends

China plans to build a middle income society by 2020 and basically realize modernization by 2050.

In this process, the mega-city region (urban clusters) in coastal areas such as Beijing-Tianjin-Hebei Region (BTH), will play an important role.



Population density in north China

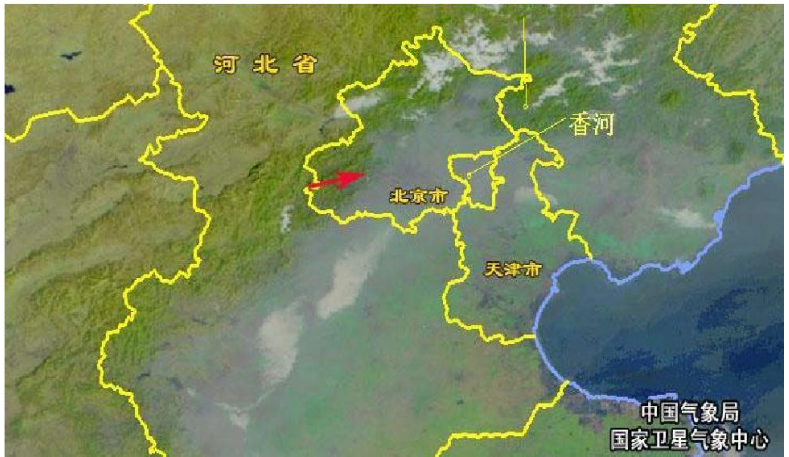
However, in the next 40 years, China's social and economic development will face huge challenges like population, economy and environment, in which:

In terms of population

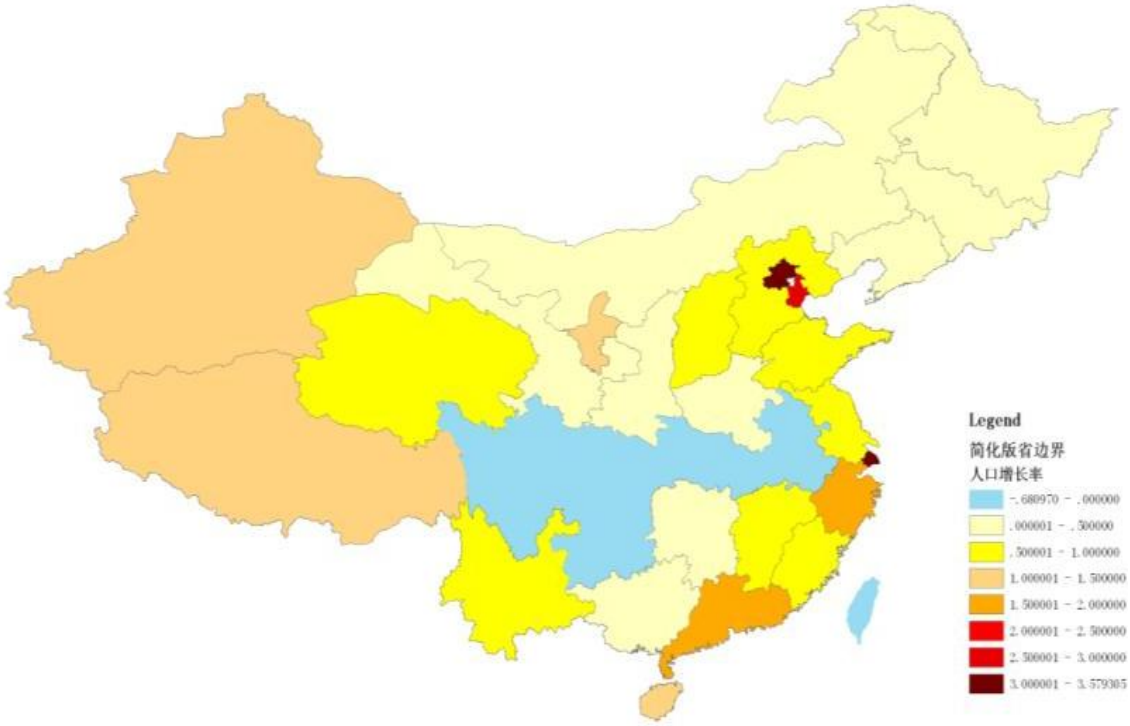
It is estimated that China’s population will see a peak around 2035 with 1.6 billion.

Till 2050, the population growth is going to slide down, while urbanization will continue to go up to hit 70% or so.

At that time, the urban population will reach at the scale between 1.1 billion and 1.2 billion.



Considering the resource, the industrialization and regional economic development, it is estimated that the newly added urban population will further aggregate in mega-city regions, thus forming 8-10 metropolitan regions near the coastal areas each with a population more than 40 million.



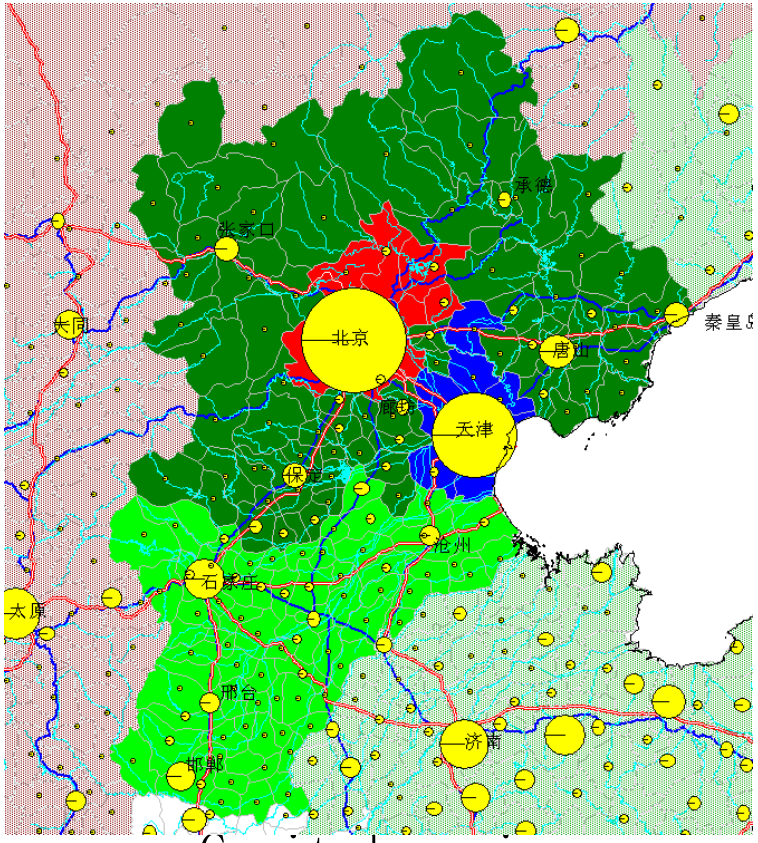
2000-2010 population growth

Comparing the fourth, fifth and sixth national census, it shows that from 1990 to 2010, population growth of BTH remained above the national average,.

Among them, the total population of BTH hit 94 million by 2005 and 104 million by 2010.

Date of population and land of BTH , 2000-2010

	2010年人口数据	土地面积	2000年以来人口增长率
北京市	1961	16411	44.52
天津市	1293.8	11760	31.37
河北省	7185.4	187693	7.75
合计	10440	215864	15.87



Capital region

If it has continued this tendency since 2000, the BTH population is estimated to reach 120 million by 2020, which is an increase of about 25 million from 2005;

From 2035 to 2050, the population may reach 130 million to 140 million, with the urban population of about 100 million, which is an increase of 60 million to 70 million from 2005.

Hence, it is estimated that the urban population in Beijing and surrounding areas will double in the next 40 years and reaches about 40 million.

In terms of economy,

It will develop into post industrialization macroscopically, with urban economic growth focusing on modern manufacturing, services production, information industry, environmental technology, tourism and so on.

On the opening-up national economical policies, BTH will remain as one of the core regions for China's economic growth, and play a prominent role in the process of globalization in China.

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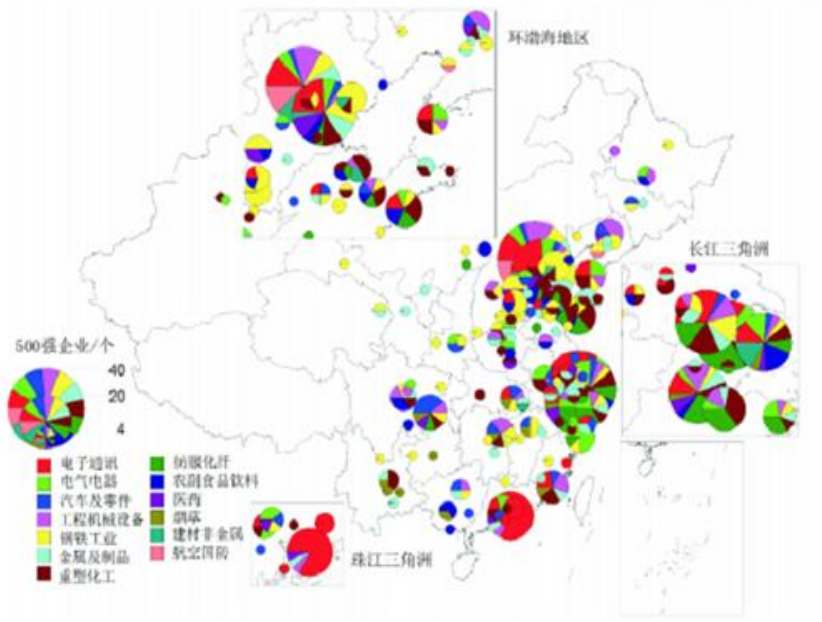
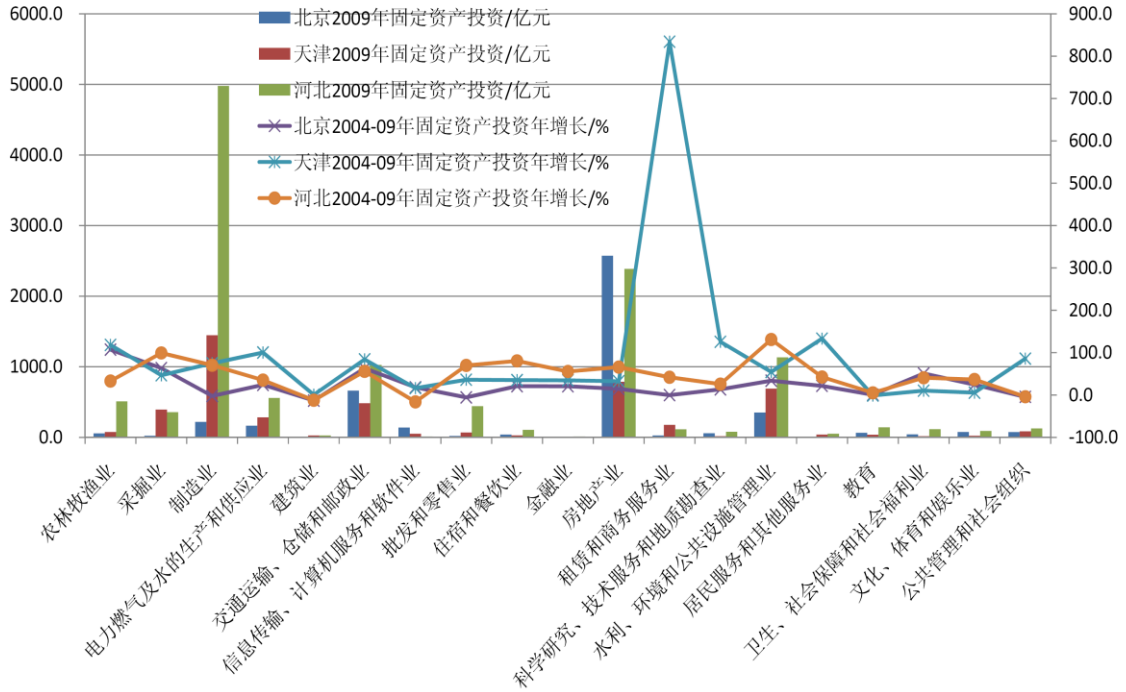


图 3 2008 中国制造业 500 强分产业空间分布

In 2007, Beijing's tertiary industrial employment rate topped 70%. In recent years, the value of global advanced services undertaken by Beijing has accounted for about 1/3 of the country.

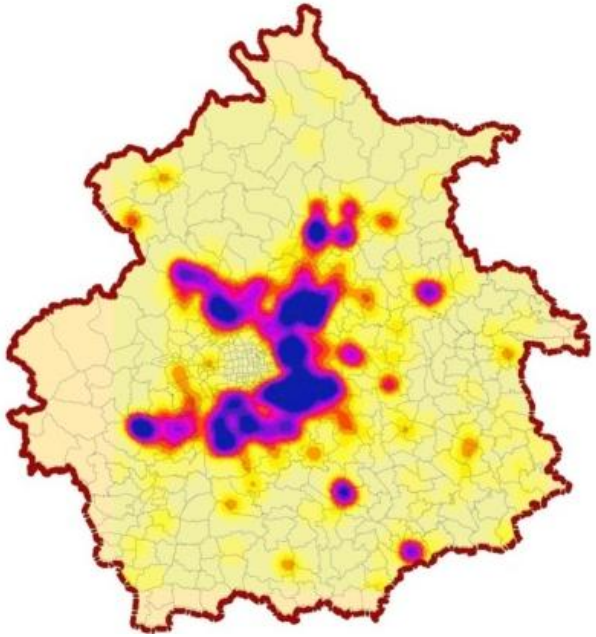
Therefore, it is hope that Beijing will undertake more tasks on national development strategies; with the goal of economical and social development, to promote advanced global city's activities, including international exchange, high-end services, technological innovation, cultural services.



In recent years, the upgrade and migrate process of Beijing's manufacturing industry has speeded up. The proportion of total industrial output turned into 10:34:56 in 2005 from 12:51:37 in 2001.

The Sixth Ring Road land sees a price hike, the growth of industrial land is gradually slow down, and part of industrial land turns to the tertiary industry.

It is estimate that Beijing's industry will extend outside the Sixth Ring, and even transfer to the outlying areas of the city.



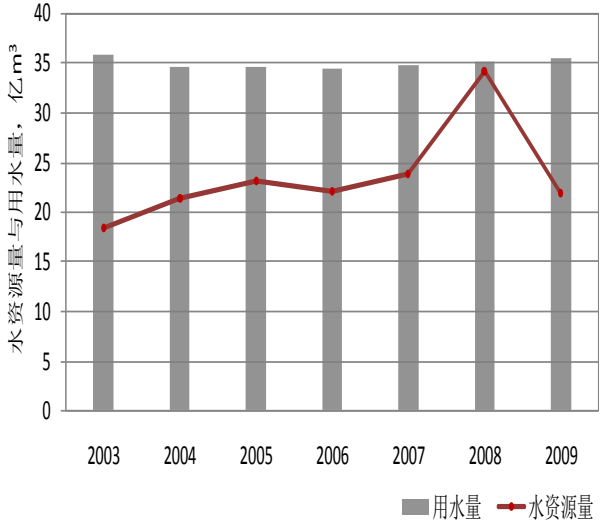
In term of urban layout,

With the view of national development policies, it is expected that the rapid expansion of metropolitan region will play a vital role in the city development in China, including Beijing.
Therefore , Beijing and the surrounding areas will experience a dramatically land-use restructuring with the rebuilding the regional infrastructure to connect the city center and the rural areas.

In terms of water resources,

According to the 2004 study, Beijing water resource carrying capacity was about 20 million people. By 2049, it is obvious that the urban population will be far more than it.

In fact, since 2000, Beijing urban water consumption has maintained at around 3 billion cubic meters, with per capita water consumption continuing to decline, mainly due to the adjustment of the urban industrial structure and implementation of water-saving policies.



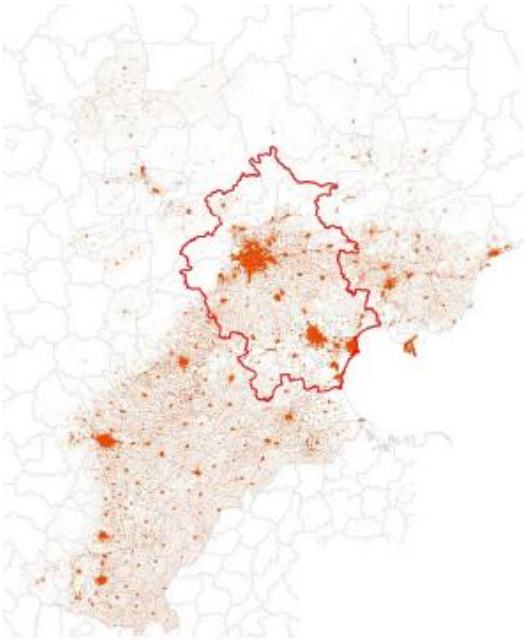
It is estimated that the upper limit of water resource carrying capacity for BTH could not be more than 110 million people, when it is accounted with the water transported by south-to-north water diversion cannel.

In order to meet the population of 130 million to 140 million by 2049, BTH should take more stringent policiess for urban water, to reduce per capita water consumption.

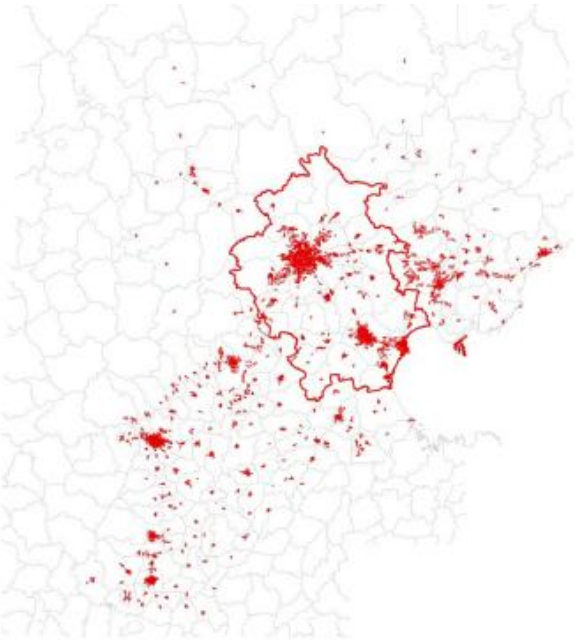
In terms of land resources,

BTH built up land covered an area of 20,000 square kilometers for 2011, in which urban land accounts for about 1/3.

If BTH sees an increase of 60 million to 70 million urban population, then an increase of built up land around 6000 to 7000 square kilometers is necessary, in accordance with the standard of per capita 100 square meters.



所有建设用地



融合（300m）后大于4平方

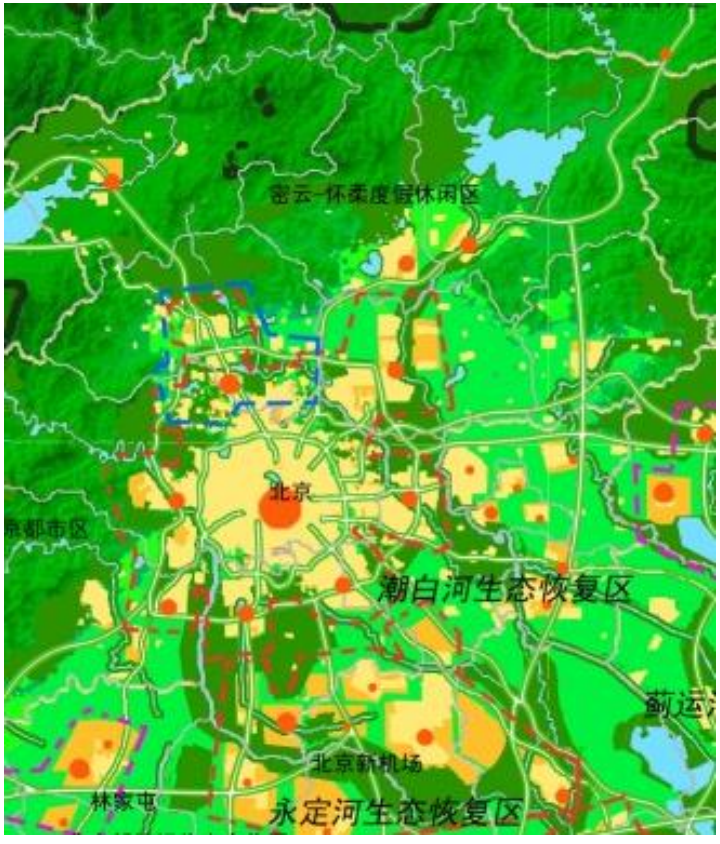
Given the actual situation of land use, New urban development land can only be obtained from the adjustment of existing built up land. Thus, the protection of traditional villages and towns as well as rural settlements will face more severe challenges.

Based on these two calculations, BTH urbanization process will commence in the nearly ten-thousand square kilometers land, including urban and regional infrastructure construction sites.

Comparing with Germany which has the population of over 80 million, land area of 330,000 sq km and annual rainfall of 600 millimeters, BTH remains at the same level as Germany in population and rainfall, but has 1/3 less land area than Germany.
Thus, BTH will get along with the urbanization process in a long run, so that a long-term strategy have to be taken.

If the population of Beijing reaches at 40 million, with a net increase of 20 million, then, an area of over 2000 sq km is needed for city development.

If plain areas of Beijing to be constructed by urban development , then above 90% of the plain will be occupied by built up areas. This development vision is unparalleled and bound to have a tremendous impact on regional ecology.



In summary, the prospectives for "Beijing 2049" long-term development is extremely complex, so that it is difficult to make a scientific and accurate forecast due to a wide range of impacts as well.

But one thing is for sure that, in order to achieve the goal of modernization and complete the rise of nation in the next 40 years, Beijing have to take more systematic and effective strategies than those over the past 30 years

2. "Beijing 2049 “: strategic proposals and prospects

1 Long-term adherence to urban development strategy defined by the 2004 master plan

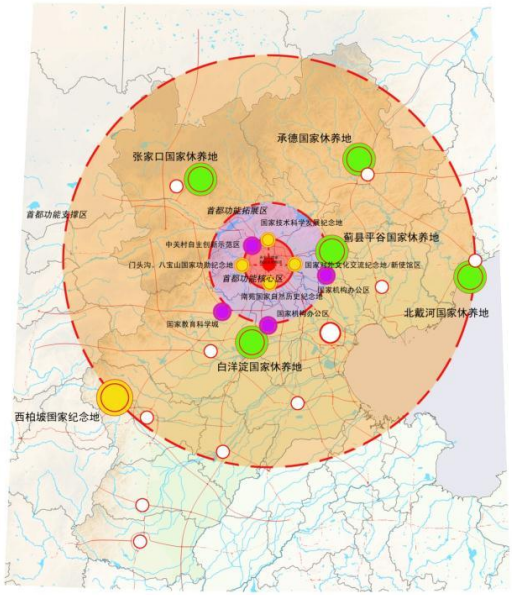
Based on the work since 2000, the urban development strategy by the 2004 master plan of Beijing has achieved a social consensus. “national capital, world city, cultural city and livable city”,

In Chinese history, a capital tends to concentrate the essence of a country's materials and culture, which is the epitome of civilization; magnificence has always been an important guiding ideology of the Chinese civilization

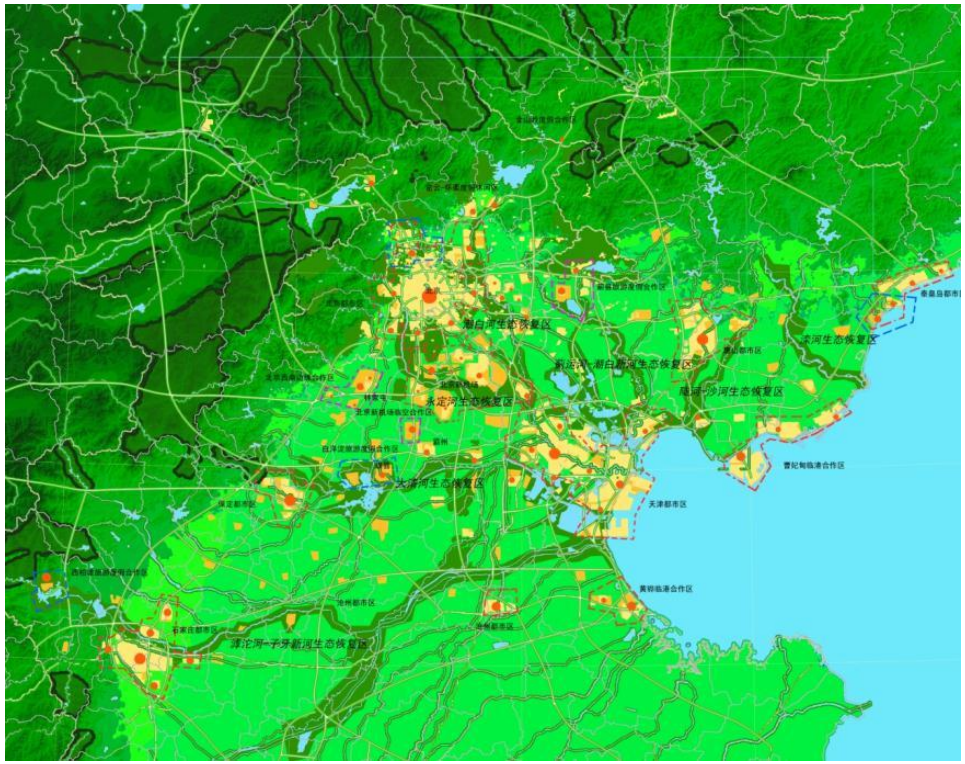
2. Improve national administration activities, aim at regional cities

With regard to the old city, the central administrative headquarter occupy the major part of the old city of Beijing. Crowded urban environment and traffic problems also affect the daily work of the central authority.

In general, the **regional city** solution may be:

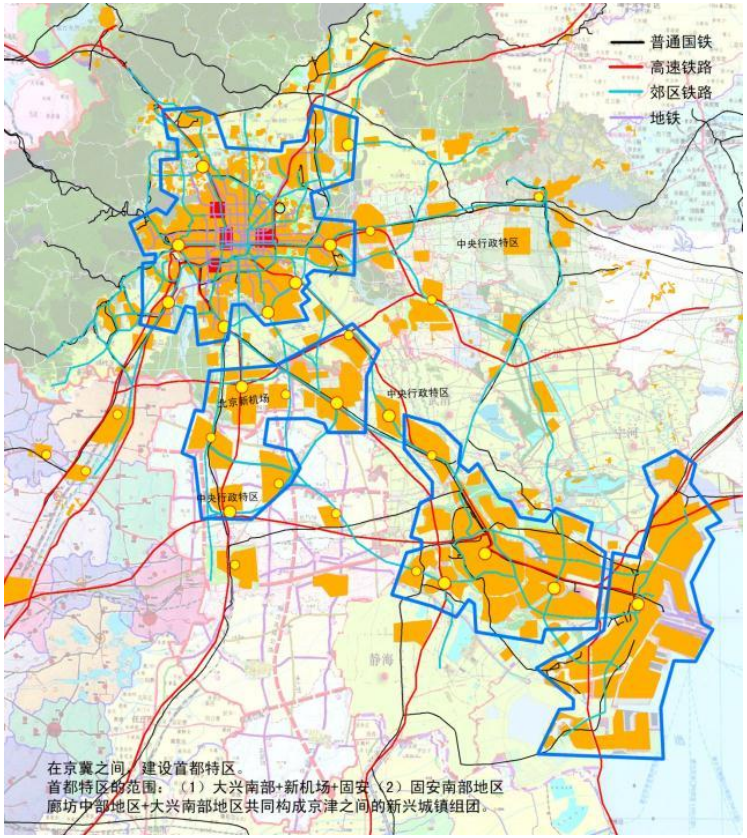


If the population and administrative organs inside the old city are reduced, the activities of the old city will be simplified, pressure on traffic will be released,
if new capital administration facilities can be built within the region (or the New Capital Area) (Figure 1), more space will be available for the arrangement of national administration, which will boost the spatial layout adjustment of BTH.



limited by the northwestern mountains, Beijing can only extend to the southeast. The future space expansion layout can be judged from a comprehensive way of circle, axis and leapfrog.

A multi-center pattern is respect as principle for Beijing's southeastern region development.



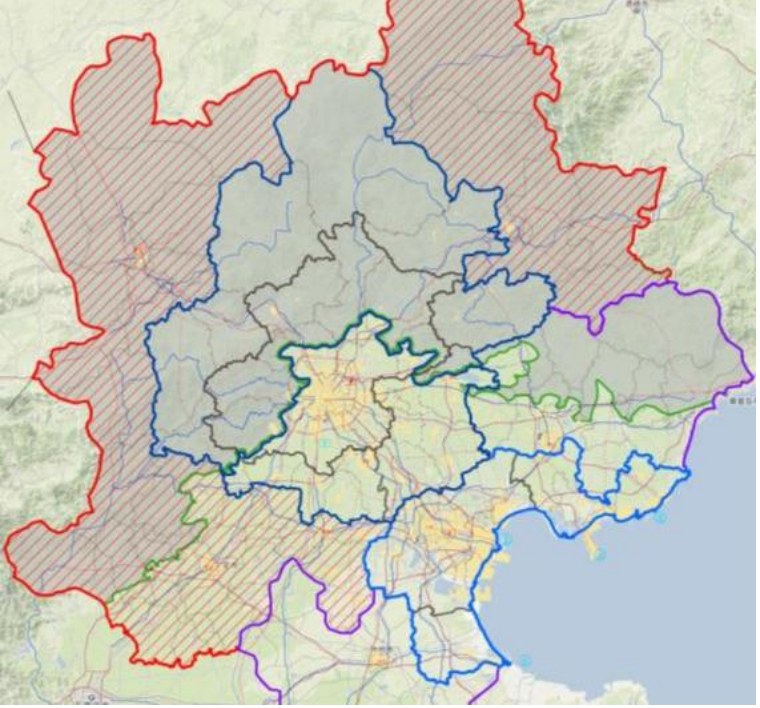


Figure 2 Regional division concept of Beijing-Tianjin mega-city area

Beijing area, including the southeast and northwest of Beijing (mountainous areas of Beijing and capital-encircled green economic circle);

Coastal areas: including Tianjin coastal area and Bohai Bay area (Qinhuangdao, Tangshan and Cangzhou)

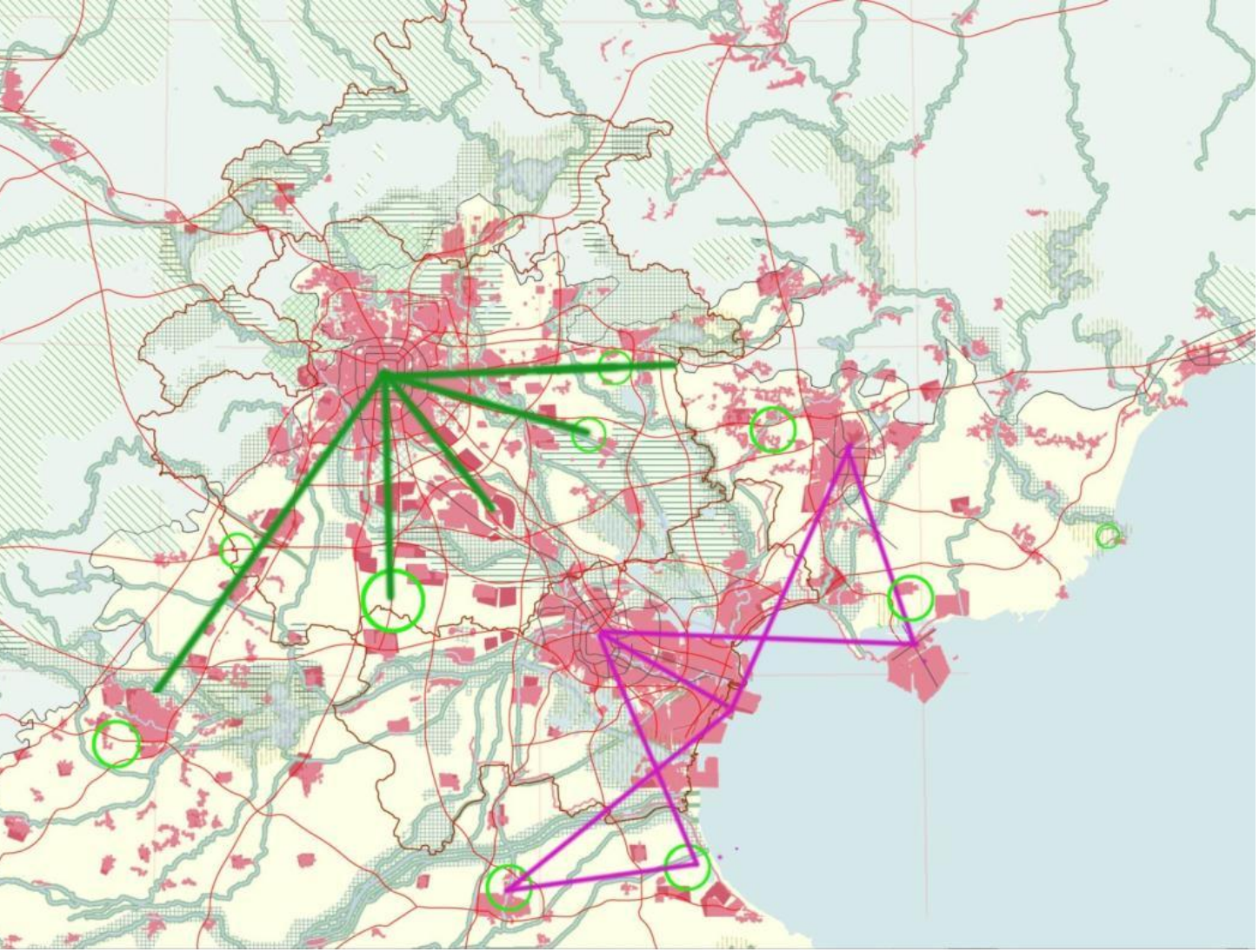
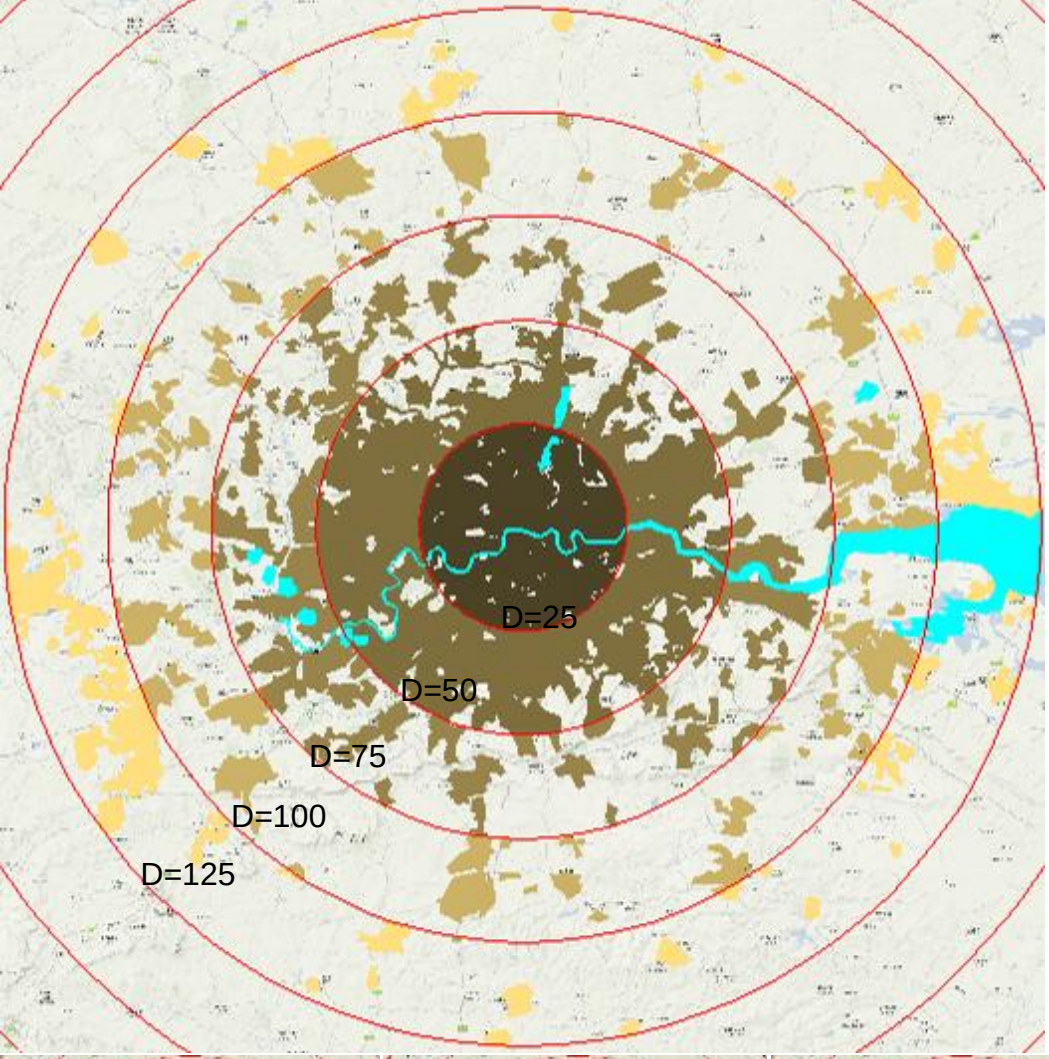
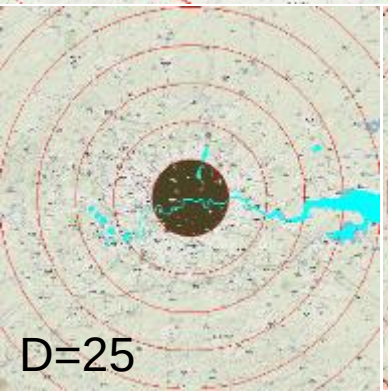


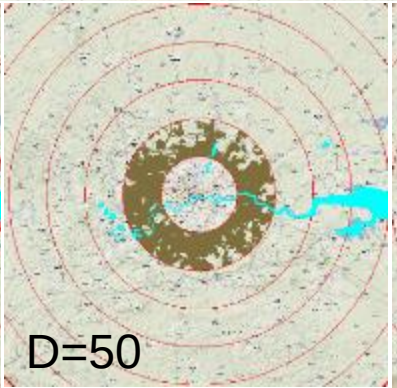
Figure 3 Structure concept of Beijing-Tianjin mega-city region

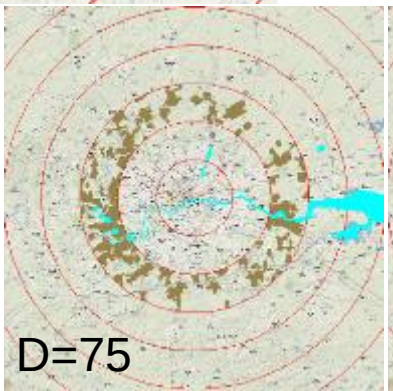


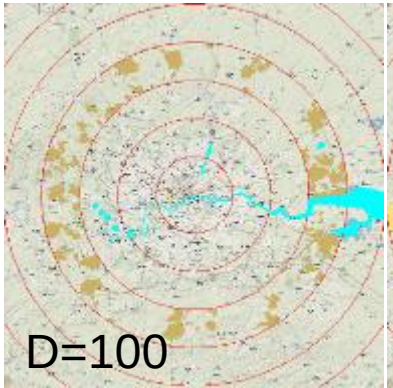
其中：伦敦地区建设用地概况

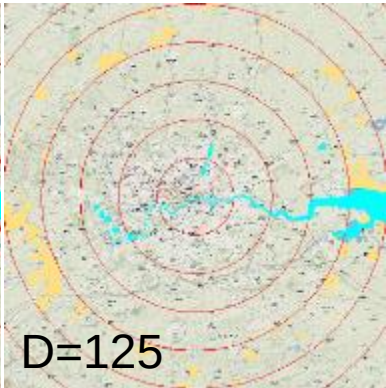
	圆环直径与面积（km2）		建设用地面积	占所在环百分比
伦敦	D=25	490	434.5	88.7
	D=50	1470	991.4	67.4
	D=75	2460	736.9	30.0
	D=100	3430	693.9	20.2
	D=125	4420	607.3	13.7
合计		12270	3464.0	**28.2**

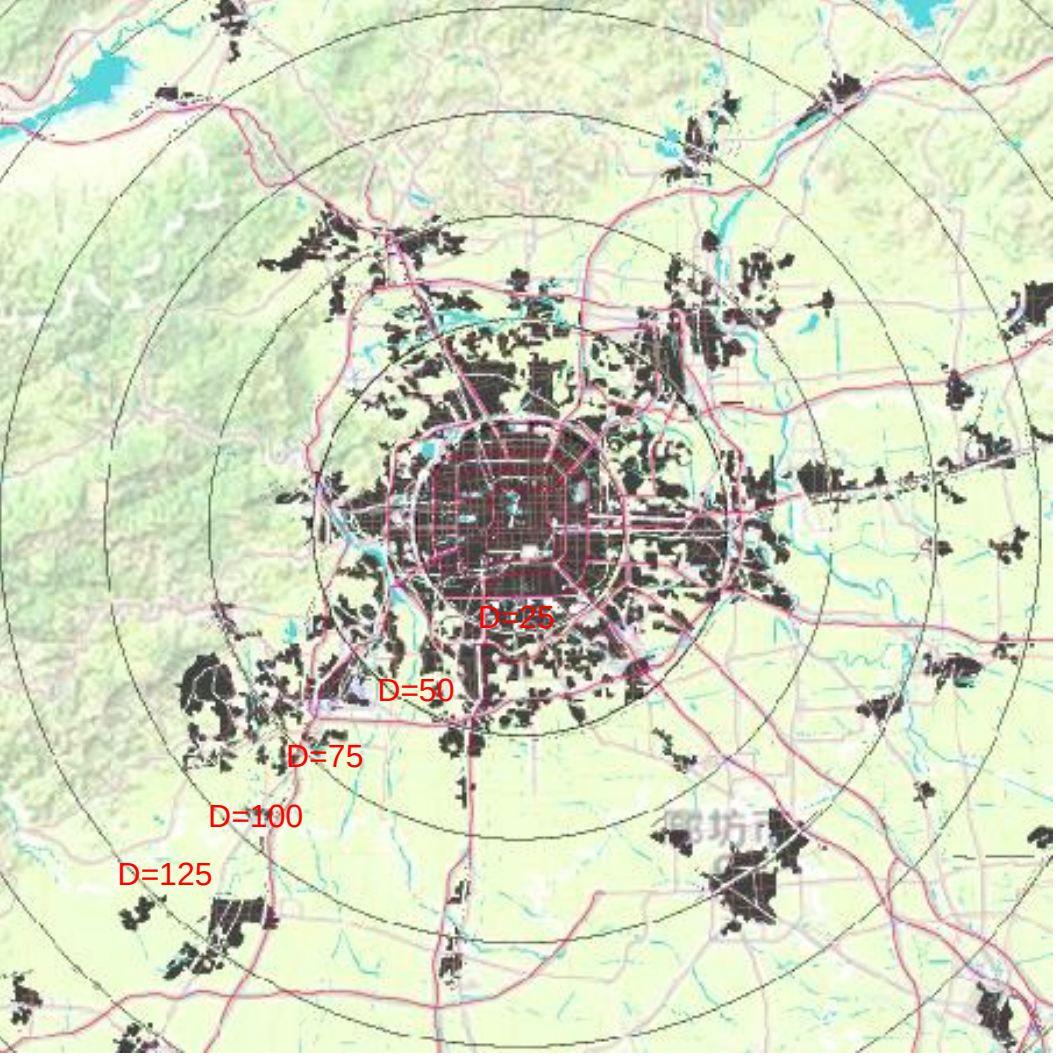








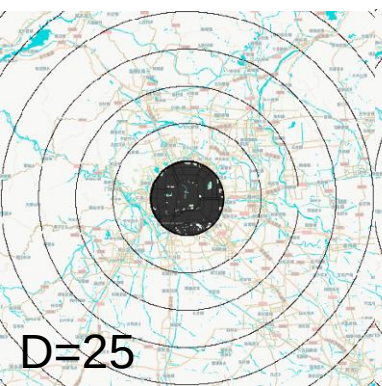


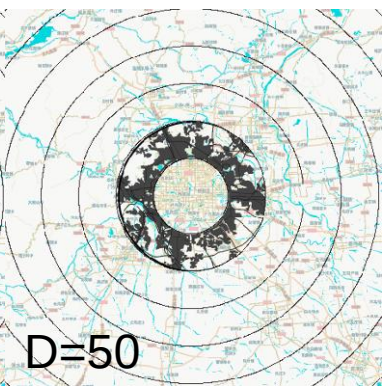


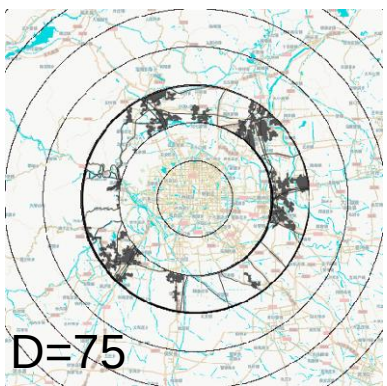
北京地区建设用地概况

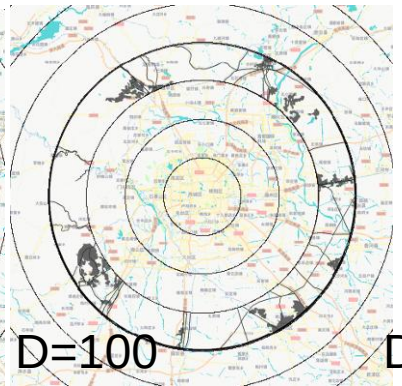
	圆环直径与面积（KM2）		建设用地面积	所在环百分比
北京	D=25	490	452.7	92.4%
	D=50	1470	729.6	49.6%
	D=75	2460	396.4	16.1%
	D=100	3430	261.9	7.6%
	D=125	4420	217	4.9%
合计		12270	2057.6	**16.8%**

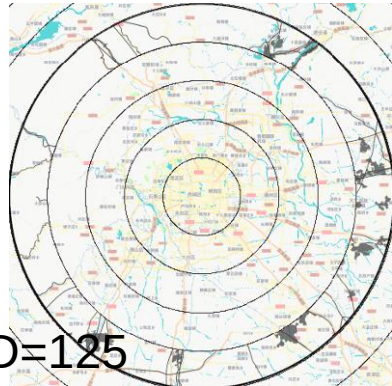
与伦敦相比，直径25公里内，北京建设用地密度高，25-50公里内要低。直径50公里用地密度则与伦敦接近，为60%











Second, taking limited land source, Central City Beijing should face the some restriction on employment and living intensity. In accordance with the residential density of 8,000 people / sq km (land area, the same as follows), the Central City (1 500 sq km) is estimated to accommodate 12 million residents, with the scale of employment maybe greater than that of the working-age population;

In terms of residential intensity, there are nearly 4 million people more than those in Paris and London; built up land accounts for 80% of the central city area, slightly higher than that of London and Paris.

In terms of city plain and new town in the city boundary , it is expected to become a major accommodation area for the increasing population.

In accordance with the residential density of 4,000 people / square km, it is estimated that these areas can accommodate 13 million people, seeing an increase of about 800 million compared to 2005.

Built up land accounts for 60% of these regions, higher than that of the similar areas in London and Paris .

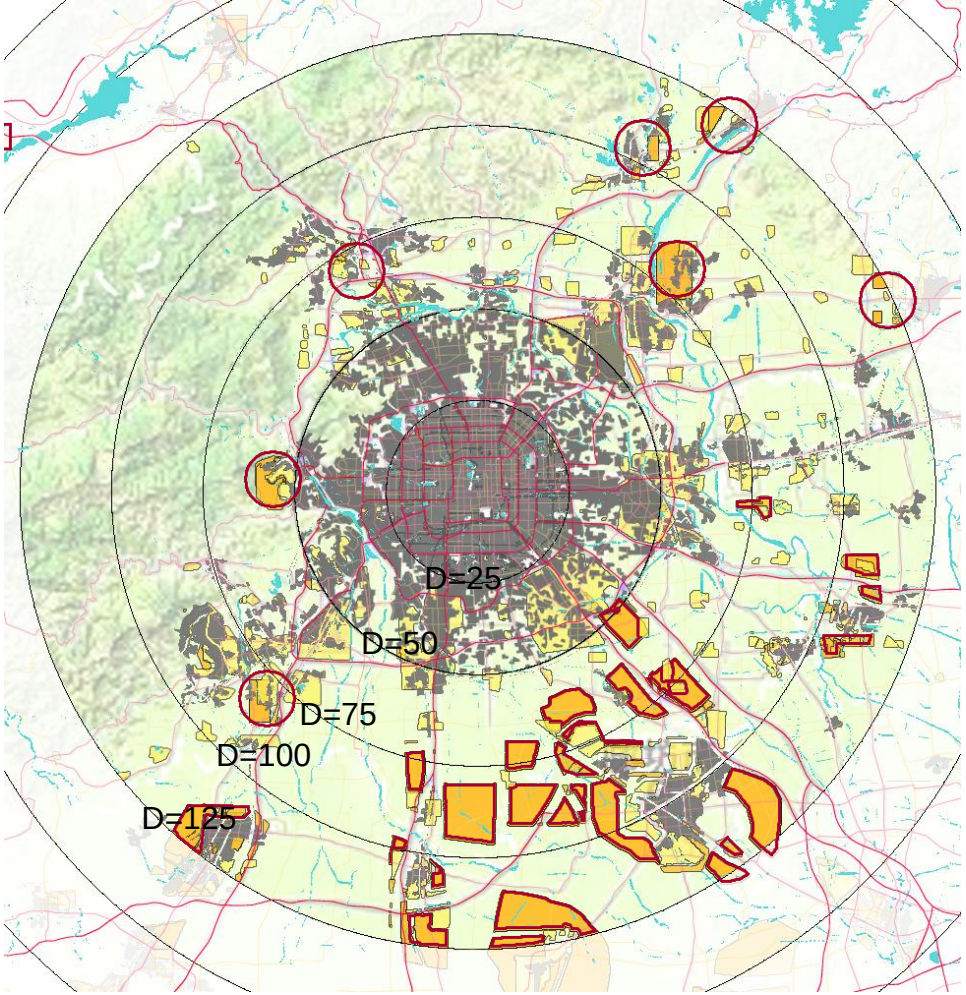
In accordance with the residential density of 2,000 people / sq km, 10 Tianjin-Hebei cities and counties bordering Beijing plain area can accommodate up to about 20 million residents, an increase of 1350 million compared with 2005.

Built up land accounts for 20% of the land area of these regions, higher than that in Paris and London.

Therefore, it can be seen that the region's population growth is shifting to the peripheral development areas.

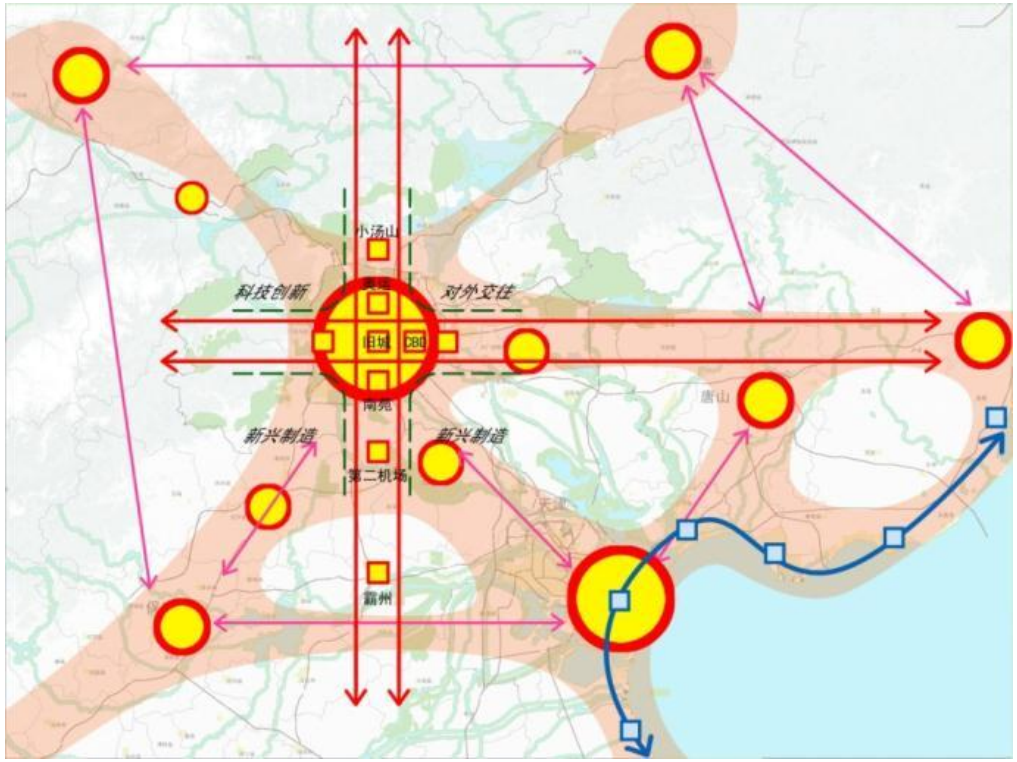
2、用地增长安排

预计：未来北京平原建设用地2600平方公里，市域外1200平方公里。



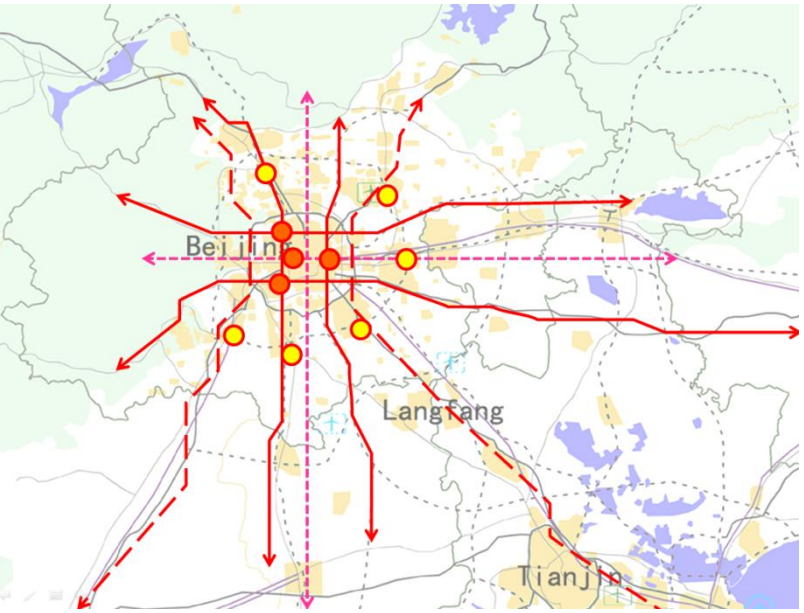
	D-50	D50-75	D75-125
现状已建	1200km2	400	400
规划未建	200km2	300	400
预景空间安排	不再增减新建设用地	新增建设用地400	新增400
建设用地密度	D25内90%； D50内60%	D50-75内20%	D75-125内8%

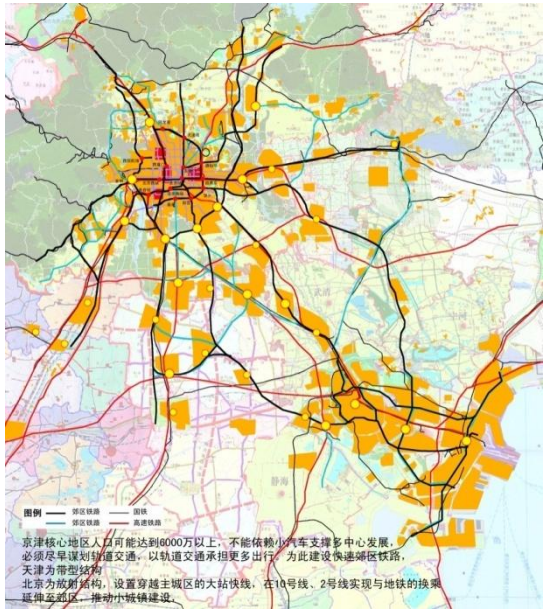
The above scenario shows that the high density of population need to be compatible to a high-density urban development; the balance of employment and residence and compact development of urban layout should be realized via rational arrangement for the urban spatial layout of urban area, combined with regional road network and other infrastructure facilities, as well as orderly manufacture land use.



Among them, Beijing southeastern region should be attached great attention to their positive effect on population diversion in 10 to 15 years, to improve eco-environment and release pressure on rapid space spread.

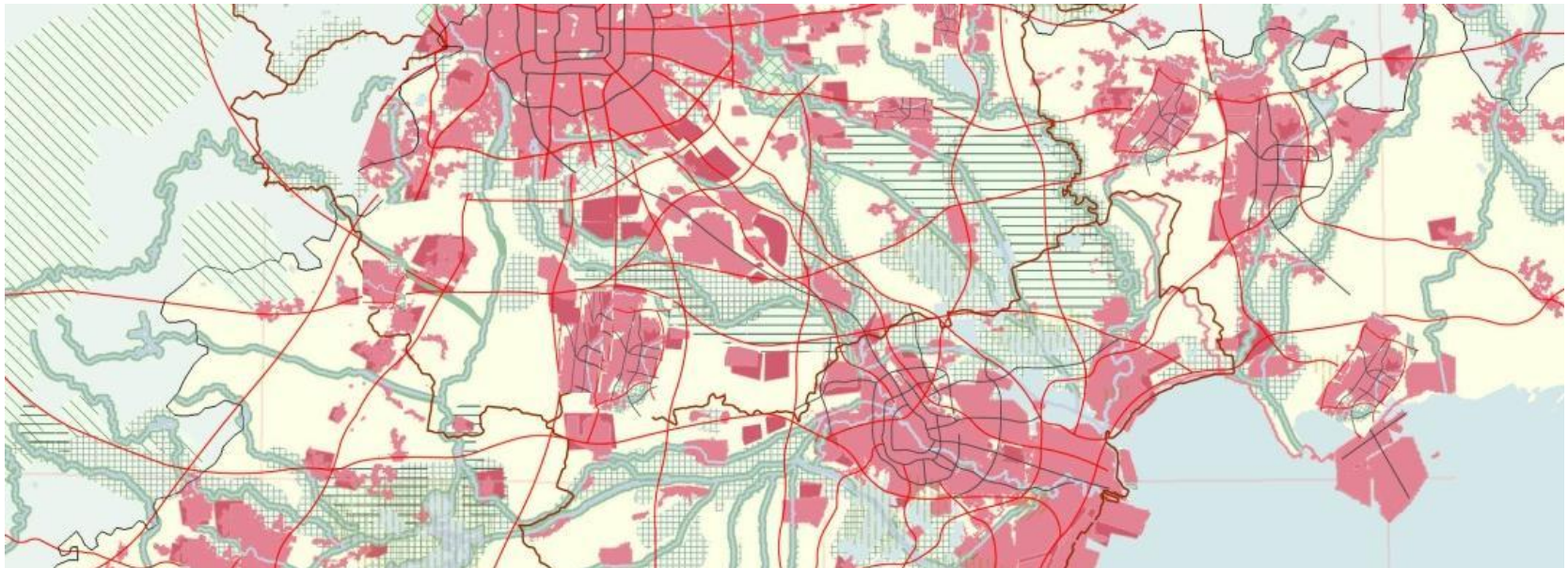
Therefore, it is necessary to build cross-border public transport and other infrastructure, to carry out environmental and ecological protection, to jointly promote the planning of country parks, leisure parks and residential communities in urban outskirts, thus ultimately forming a mega-city region with rational labor division and orderly layout.





Thirdly, Beijing-Tianjin city corridor will gradually evolve into a coastal and hillside with compact city region, and they will shift to a advanced service gathering in the central city; modern equipment manufacturing gathers along the coast, while high-tech industries manufacturing extends to the periphery along the transportation.

Beijing-Tianjin corridor and Tangshan, Qinhuangdao, Baoding, Shijiazhuang will form a one-hour traffic circle, and the Bohai Sea coastal belt and inland towns will be closer, to become a spatial corridor for the population and economic growth.



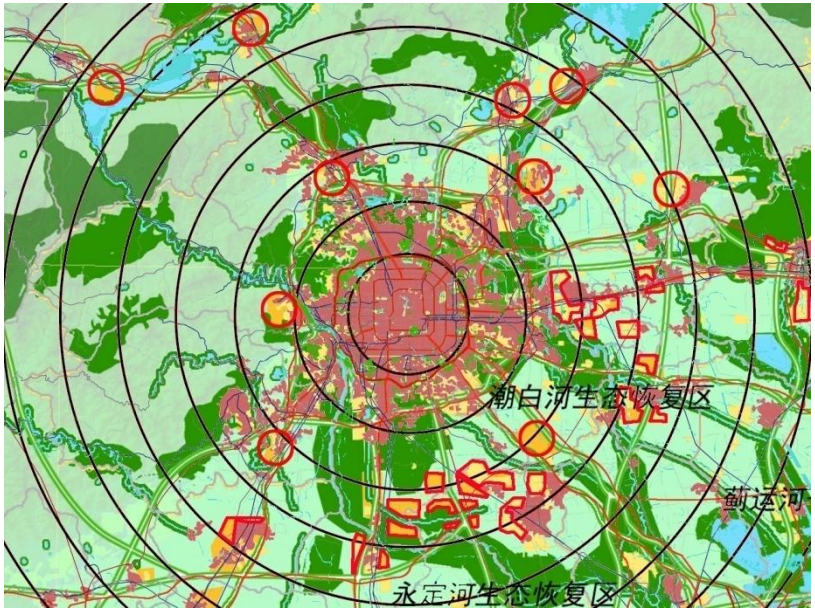
Improving Spatial structure of Central City Beijing

In the next 40 years, Beijing will pass into the significant adjustment period for the urban spatial, economic and social development.

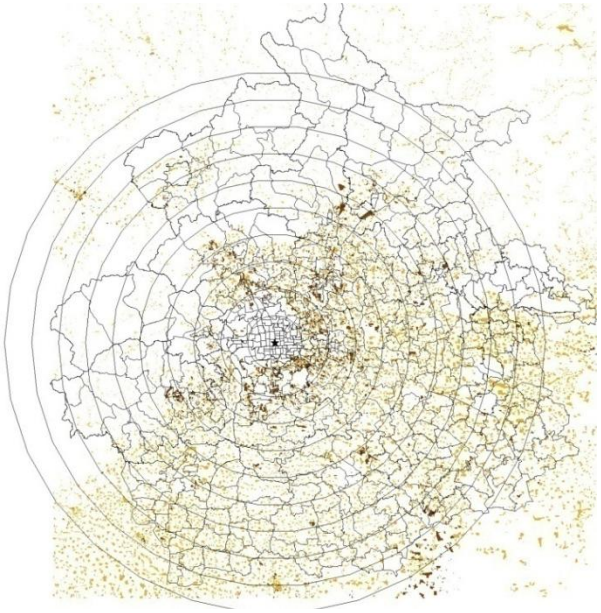
In terms of space, most buildings between the Second Ring Road and the Fourth Ring Road before Year 1978 are facing removal and transformation.

The area is account for 40% of the total construction area; in the old city, nearly 30% of the land is facing rebuilding.

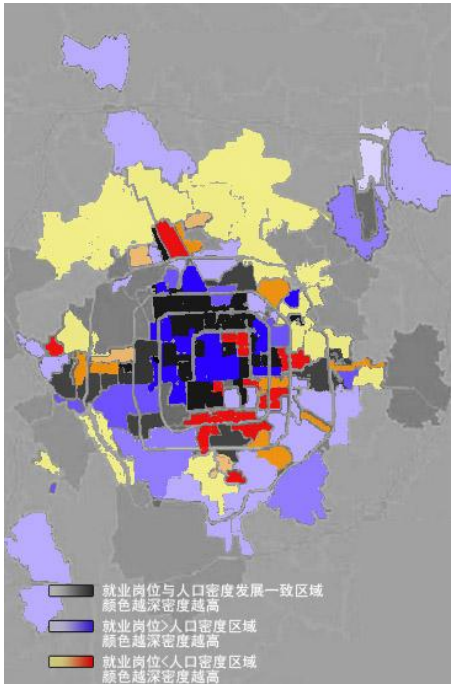
	D-50	D50-75	D75-125
现状已建	1200km2	400	400
规划未建	200km2	300	400

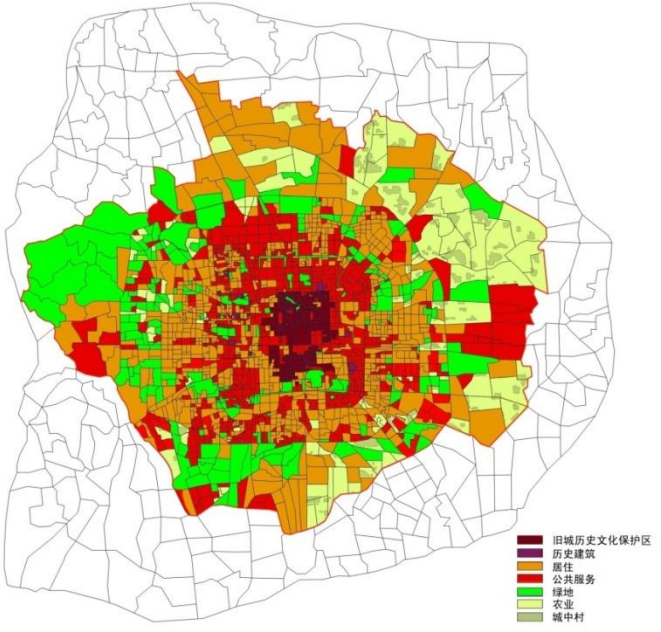


In terms of functional layout,
in recent years, Central City Beijing shows the dramatic change with mixed functions; industrial, warehousing and residential land extends along the fast channels such as highways, between Fifth and Sixth Ring and the rural-urban fringe zone
The expansion of Central City promotes the extension of metropolitan region to new town, making urban production and life activities more frequently converged with each other.

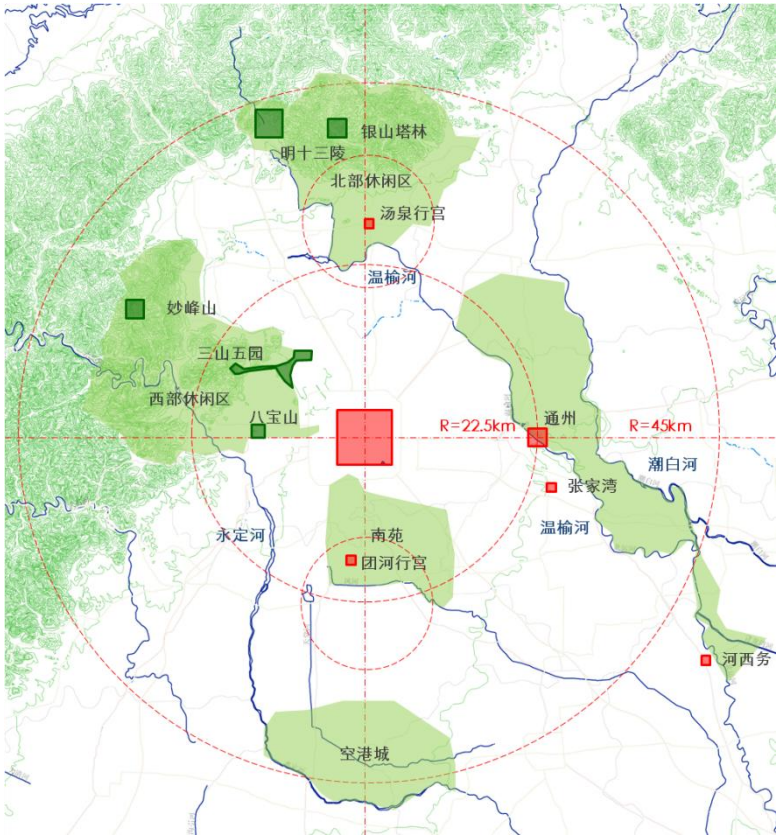


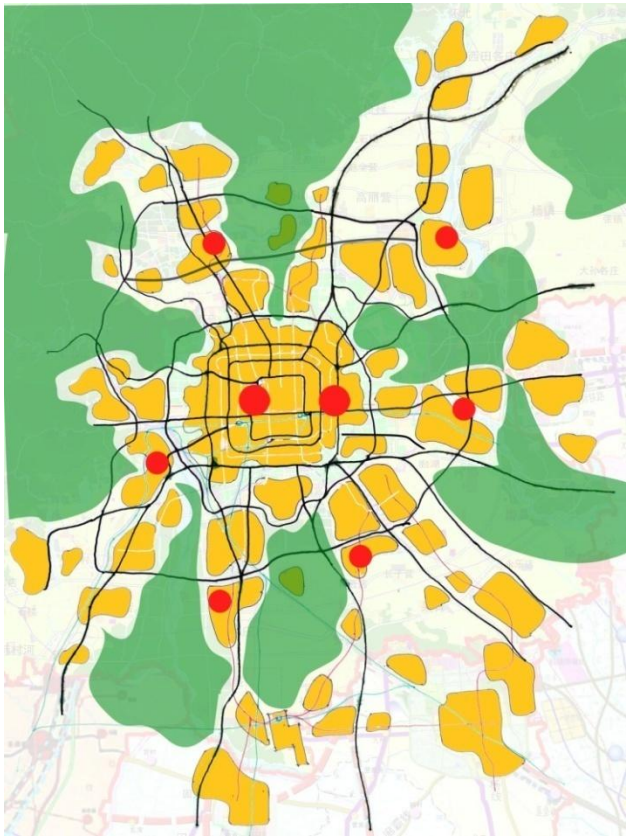
On the other hand, regional and municipal business, and financial services is gathering between the Third and Fourth Ring. The long-distance commuting problems occur gradually in the Fourth Ring and its surrounding area, due to combined effects, e.g. the advanced services sector, cultural industries and international functions in the north of Summer Palace - Yizhuang line; prominent living functions in the south; but insufficient package commercial services on the boundary of the Central City Region.



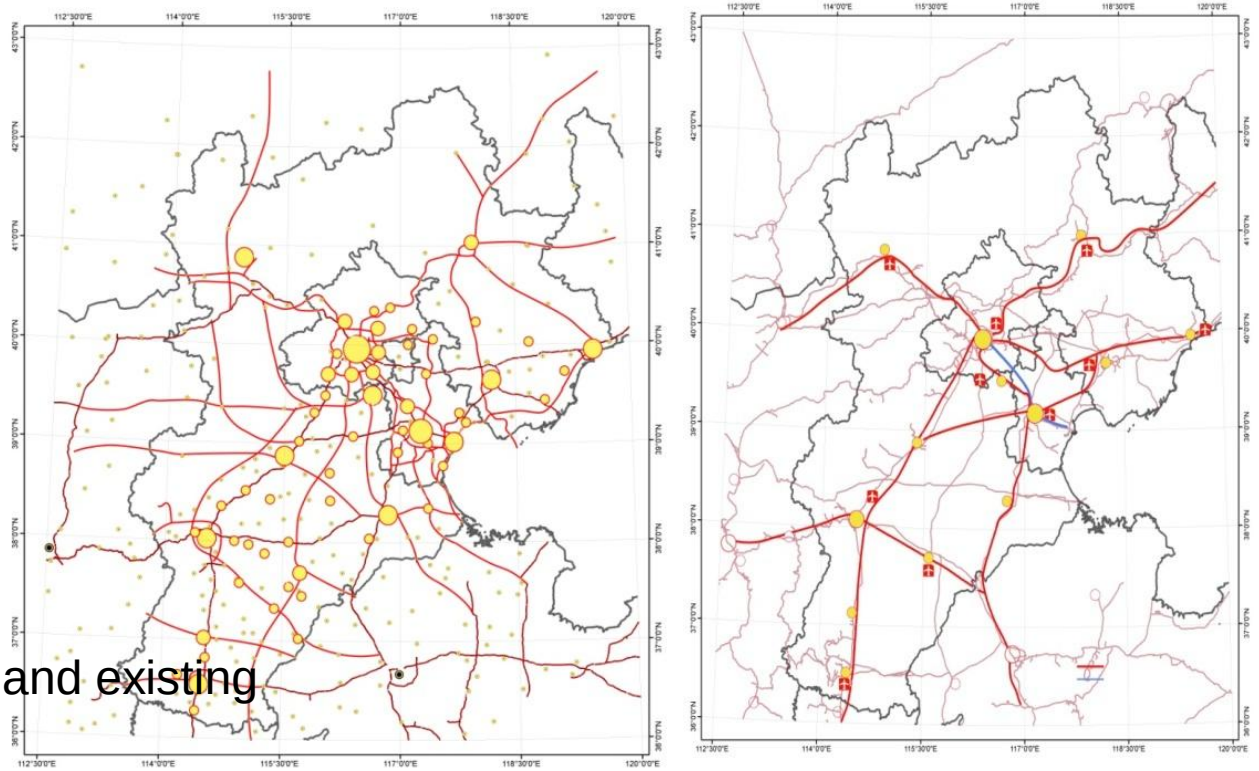


As a result of the substantial growth of city size, the population is bound to see a very possible rapid aggregation and high density. Therefore, it is necessary to adjust the spatial structure of Beijing city, to meet the requirement of the city development and capital function improvement.





In terms of investment in public facilities, in order to drive urban expansion and promote the upgrade of the service sector, it is necessary to launch large-scale urban and regional infrastructure. At the same time, it is necessary to build all day life infrastructure for improve living conditions of the low-income people.



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