

Workweek 2015
Transit-Oriented Development
&
Smart Micro City
@
Tongzhou New Beijing East Station Area

13-27 September

Update 10th Sep 2015

Working Document

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		Assignment	
		Research by design for future development at New Beijing East Station in T	
		Theme	
		Smart MicroCity and Transit Oriented Development	
		Commissioned by	
		Creative Industries Fund NL, Rotterdam	
		Beijing Municipal Commission of Urban Planning, Beijing (BMCUP) - t.b.c.	
		Team	
		Curators	
		Wu Chen, Beijing Institute for Architectural Design, BeiJing (BIAD)	
		Wu Weijia, Tsinghua University, School of Architecture, Department of Architecture	
		Cui Kai, China Architecture Design & Research Group, Beijing	
		Du Liqun, Beijing Municipal Institute of City Planning & Design	
		Zhang Bing, China Academy of Urban Planning & Design, Beijing	
		Ton Venhoeven, VenhoevenCS architecture+urbanism, Amsterdam	
		Project coordinators	
		Huang He, Tsinghua University, School of Architecture, Department of Architecture	
		Thijs van Spaandonk, Transition LAB, Amsterdam	
		Nanet Rutten, Grontmij, De Bilt	
		Support	
		Li Gubai, VenhoevenCS architecture+urbanism, Amsterdam	
		Executive organizations	
		VenhoevenCS architecture+urbanism, Amsterdam	
		Beijing Institute for Architectural Design, Beijing (BIAD)	
		Tsinghua University, School of Architecture, Beijing	
		Time table	
		1 April-13 September	Preparations for the workweek
		13-18 September	Design Work week TOD New Beijing East Station
		18 September	Informal presentation of results of the work week
		24 September	Presentation of the work week results
		Location of workweek	
		Tsinghua University, School of Architecture, Beijing	
		Contact details	
		Thijs van Spaandonk	thijs@transitionlab.nl Phone: +31618
		Nanet Rutten	Rutten@grontmij.nl Phone: +31652
		Li Gubai	g.li@venhoevencs.nl Phone: +31624
		Related events during Beijing Design Week	
		24 September	The Network City
		25-26 September	Sponge City, Urban Regeneration, Country vs City
			The Next City)
		26-27 September	Design for China (UED); Urban Regeneration
		Up coming events	

in the fields of spatial planning, urbanization, mobility, urban economics, water
With this exchange we hope to develop valuable ideas for smart and sustainable
planning approach, tailored to the Chinese conditions and requirements of today

the complex issues regarding urbanization and the spatial organization of our coun-
development, demography, mobility, housing, resources, energy, environment, water
related to spatial planning. To face these challenges in The Netherlands, in China
the world, it is necessary to collaborate and exchange experience, knowledge and
complex and interrelated issues.

and a logic of its own in view of local conditions and past experiences. And each
es resulting from unexpected side effects of past planning related and other devel-
ing approach, with tools and standards created to allow for the rapid urbanization
ion of today. Current challenges are the direction of economic development, scale
atch approach of integrated planning is a model of collaboration in itself, as a result
e specific spatial and environmental conditions of the Dutch Delta such as flooding
ims to enhance international collaboration and exchange of knowledge on smart,
holistic- and long-term spatial planning. Chinese and Dutch planners are both fac-
and sustainable cities. Their collaboration in Towards 2050 is aimed at building the
ambitions into reality.

disciplinary action. We need the involvement of Chinese and Dutch professionals
expertise; specialists and generalists; experienced researchers and students; pol-
organizations and private enterprises. These actors will be brought together in work-
on a shared future for sustainable urban regions in China and The Netherlands.

Each Approach for Sustainable Urbanization is a multiannual program commissioned
related projects are attuned with the Beijing Municipal Commission on Urban Plan-
are organized by the Dutch office for sustainable architecture, urban planning and
ture+urbanism in collaboration with Tsinghua University and Beijing Institute of

**collaboration has a lot of potential, and
be continued, not just last year and
so next year and into the future”**

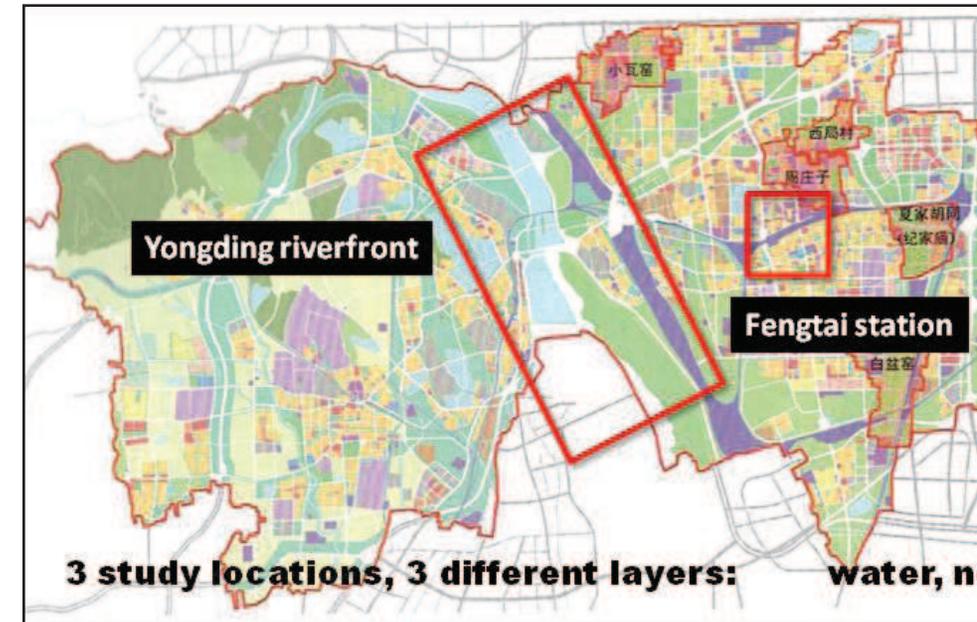
Municipal Commission on Urban Planning,

op of Towards2050

proach for Sustainable Urbanization, initiated by the Creative Industries and NE
is to explore how the Dutch integrated planning approach can be of added value
tan regions are facing in the process of rapid urbanisation. This question is explor
by design’ workweeks on specific spatial planning challenges.

Workweek 2013: Fengtai District

The first exploratory work week was organized during the Beijing Design Week in
perform a thorough study, but rather to create a platform for an exchange of ideas
sionals. During this workweek, the participants collaborated successfully on three
the local stakeholder, the Fengtai District Planning Bureau. One assignment was
along the Yongding river, the second was inner-city redevelopment around Dahou
development of Fengtai station and its surroundings.



Workweek 2014: Qinghe Station and Beijing North Station

At the request of the Beijing Municipal Commission of Urban Planning, the focus
tion area development and transit-oriented development (TOD), with a special
North station in Beijing. While station design is about organizing traffic flows and
and while station area development is about capturing land value increase in stati
TOD is about everything related to optimizing non-motorized and public transp
ability, economic vitality and quality of life in the cities. It implies station and stati
also the development and organization of related neighborhoods. TOD means a
borhoods and station areas related to well-designed public transportation netwo
priority for the Chinese government in recent years.

The work week in 2014 expanded from one to two weeks. The Sino-Dutch ‘resea
during the first week, hosted by Tsinghua University. This week was curated by W
Land Design), Wu Weiwei (Tsinghua University, School of Architecture), Guo Kai



Chinese and Dutch experts from various disciplines: architects, urban planners, and project managers, from renowned universities, design institutes, government

seminars and workshops on transit-oriented development practices in China and The Netherlands, respectively organized and hosted by the Beijing Institute for Architectural Design and the Institute of Comprehensive Transport of the People's Republic of China, and China Railway Corporation.¹

The workshop will focus on Tongzhou's new Beijing East Station and its area development. It will explore possibilities to apply TOD principles in urban planning by pre-planning 'redevelopment' opportunities to apply some of the closely related themes of smart cities and Smart City development will be explored as well.

China's current investment in transit is massive – 3,000 km of urban rail will be completed by 2020. Thus, tremendous opportunities lie in Chinese cities to apply TOD and the important economic aspect of TOD) around metro stations and high-speed rail stations. The challenges faced by Chinese cities are apparent, such as coordination between metro and other urban transport, hampering legislation, sectorial planning and a lack of integration of other urban transport. The Chinese governments on all levels know that TOD should be implemented, but they do not know how it should be done in the best possible way. Therefore, governments and stakeholders should learn from international best practices.

Relevance of Transit-Oriented Development in China

Station area development and TOD are urgent topics in China, which is rapidly urbanizing (Chinese cities see an increase of over 16 million cars a year). When done well, the benefits for China are numerous. Not only can it help tackling the major environmental problems, but it can also add to a better quality of life for people in the growing cities. These two issues have become a top priority for the government.

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The governments in China have initiated and are still initiating projects in order to improve urban transport. At the national level, the National Development and Reform Commission (NDRC) has launched the National Smart City Solution Platform for urban transport. And the Ministry of Housing and Urban-Rural Affairs has launched the National Smart City Joint Labs, focusing on Smart City development and Smart Micro Cities. On a local level, the Beijing Municipal Commission of Urban Planning and Design has asked the Beijing Institute for Architectural Design to develop TOD guidelines for Beijing metro stations.



and commercial activities and jobs at walking distance. Even car owners need a park their car.

is considered a central concept in creating attractive cities that are accessible on the Netherlands, the concept coined in the USA has been used in 'the Dutch Way'. new developments, but also in transformation of use of existing networks and the

the Randstad, is an area about 100 kilometers across with more than 10 million and smaller cities are mutually connected via networks of limited, but very efficient infrastructure. This networked city is - to a growing number of its inhabitants living patterns.

Netherlands has quadrupled, the network length of its train infrastructure has not cars. Increasingly the network is intensively used, today it functions more like a system than a national train system. On most tracks in the core area, trains will use the both directions. Growth of income, ICT and access to multiple modes of transportation the way we use this area.

from star shaped cities with one way commuter flows to almost one larger, clustered centers. In terms of economic development this favors urban areas around major nodes due to the financial crisis, this has led to a radical shift in the preferred types of urban development from green-field developments to urban, transit oriented development in existing cities.

is focused on a better integration of mobility infrastructure and land use planning. network usage of the different mobility infrastructures, with more attention for freedom the interaction between the different modes of transportation. At a micro-scale pedestrian routes, in part to increase the catchment area for transit hubs.

improving intercity speeds. In general accessibility policy is aimed at network usage that and networks more resilient towards disturbances. On the land-use side focus is on urban areas. A general aim is to turn station areas into new urban centers of activity, focus tailored to the specific mobility mix and the existing urban setting. Redesign and surrounding public space is an important tool to achieve this.

a balanced approach at the level of the node, the corridor and the network as a part from a view on the territorial and spatial aspects, a strategy and governance of the "networked city".

Experience

based on integrating separated interests from multiple stakeholders into integrated urban design based on multi-sectorial alliances and research by design as a tool to create consensus. It may be useful to develop the instruments needed for successful implementation of the research method has been successfully applied in major TOD projects in the Netherlands

- through research by design - that can be profitable once official planning processes



Zuidas: This district in Amsterdam is a high-quality living and working environment as well as safe, accessible and sustainable.

It is a walkable and bicycle-friendly neighbourhood, with 2 train stations, 3 metro stations (near future), and proximity to Schiphol Airport and the A10 orbital motorway.

Zuidas is known as an international knowledge and business centre but it also provides 9000 homes, with ample hotel and leisure facilities.

by Miata in 1882. Later also the planners of the Russian Constructivist movement planned linear cities along transportation infrastructure. In those days the main focus was ways and roads. In many cities around the world traces of this type of early transit development. In the second half of the twentieth century the concept of high density development was developed. In recent decades all kinds of Transit Oriented Developments as well as in countries like Brazil, US and China to improve quality of life and traffic flow in cities. Turning deteriorated cities and metropolitan regions into walkable cities with transit is one of the main goals of today's TOD's.

Transit Oriented Development is also integrated in the concepts of eco and low carbon cities, and smart cities and smart transit hubs and TOD. Using TOD's non-motorized traffic and transit planning guarantees optimal connectivity and strong economy combined with high density and low emissions for traffic. But smart cities have more to offer. Exploring Smart MicroCity and Smart MicroCity are relevant for spatial planning and TOD in Tongzhou is important. With which design principles can Tongzhou become a smart city and how can TOD be applied in Beijing's New East Station and the development of the city.

smaller scales of implementation

Transit Oriented Development with smart, integrated and decentralized solutions - for logistics, waste management, manufacturing and production, food production, 3D printing etcetera - smart cities and smart transit hubs that provide sustainable solutions for urbanization at the local scale. This could be done while previous technologies required major infrastructure and large economies of scale. Smart technologies can be efficient at much smaller scales with the help of ICT. This can become part of local metabolisms that make optimal use of waste flows from smart technologies and solutions they also reduce motorized traffic, energy demand and pollution. Implementation requires an optimal scaling of all related infrastructures of traffic, energy, water and smart transit hubs that multimodal traffic and logistics should be optimally adapted to the challenges, at the different scale levels. To be able to develop proposals for this in Tongzhou, research and flows is needed.

Planning, governance

Transit Oriented Development, the way in which local planning, operations and governance are organized and urban infrastructures at the local level and attuning these with infrastructures at the regional level. The subsidiarity principle in planning and decision making, with the right to manage at each scale. The subsidiarity principle is used to prevent micro management in smart cities and their management. It means that planning decisions at each scale relevant at that scale, more detailed and more abstract planning decisions are left to the local level it means that - to be able to manage the smart city and its integrated neighborhood level is needed: the Smart MicroCity. This entity is responsible for the Smart MicroCity, its flows, its PPP's, its integrated and multiple business cases and its public participation. It would be interesting to study which would be the right Smart MicroCity for development. Next to this we want to use social media to encourage public participation

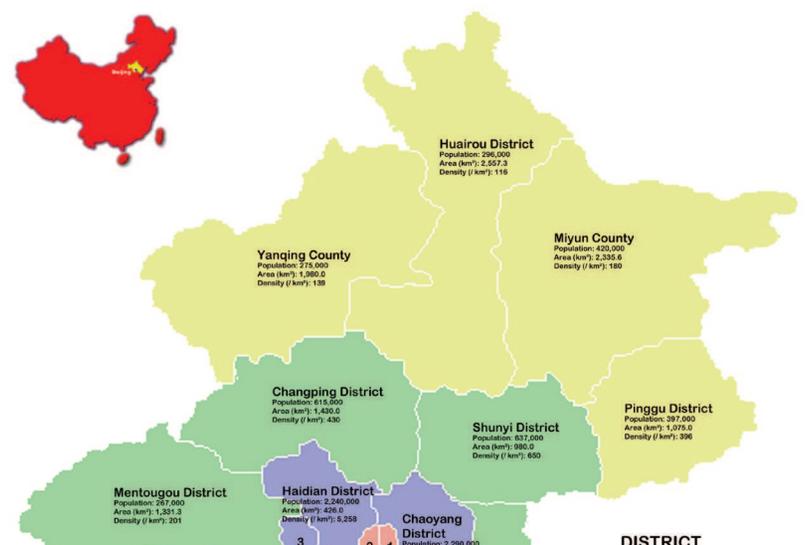
southeast of Beijing and considered the eastern gateway to the nation's capital. It is located 40 miles due east of central Beijing, at the northern end of the Grand Canal (on the southern side of the canal and the Northern Canal) and at the easternmost end of Chang'an Avenue. The area covers 11.5 square kilometers, or 6% of Beijing's total area. It had a population of 673,952 in 2010. There has been significant growth and development since then, growing to a population of 1,184,000 in 2012.

In 2012, Beijing's old East station stopped being a passengers terminal. In order to connect the East and West stations, the new East station will be the starting point of the Beijing-Tangshan line. When this happens, commuting time will only be 30 minutes between these two cities. The new East station is located at the new East station. Since the population of Tongzhou is expected to grow, the new East station will be developed (creating local employment and facilities), in order to prevent major congestion. In the future, the Batong line and metro lines 1 and 6 will be extended (proposed) to the new district center towards the canal area, developing the North East area with a social and economic center.

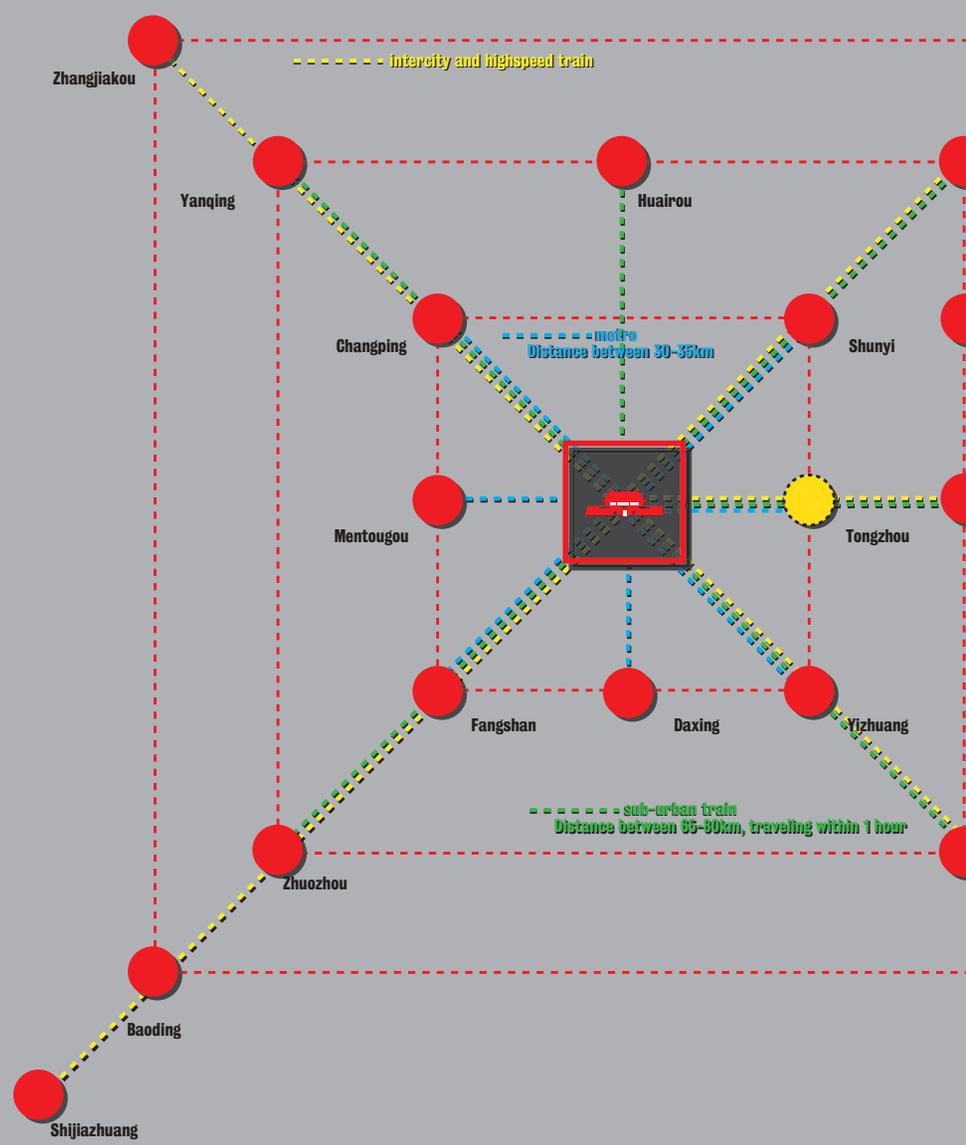
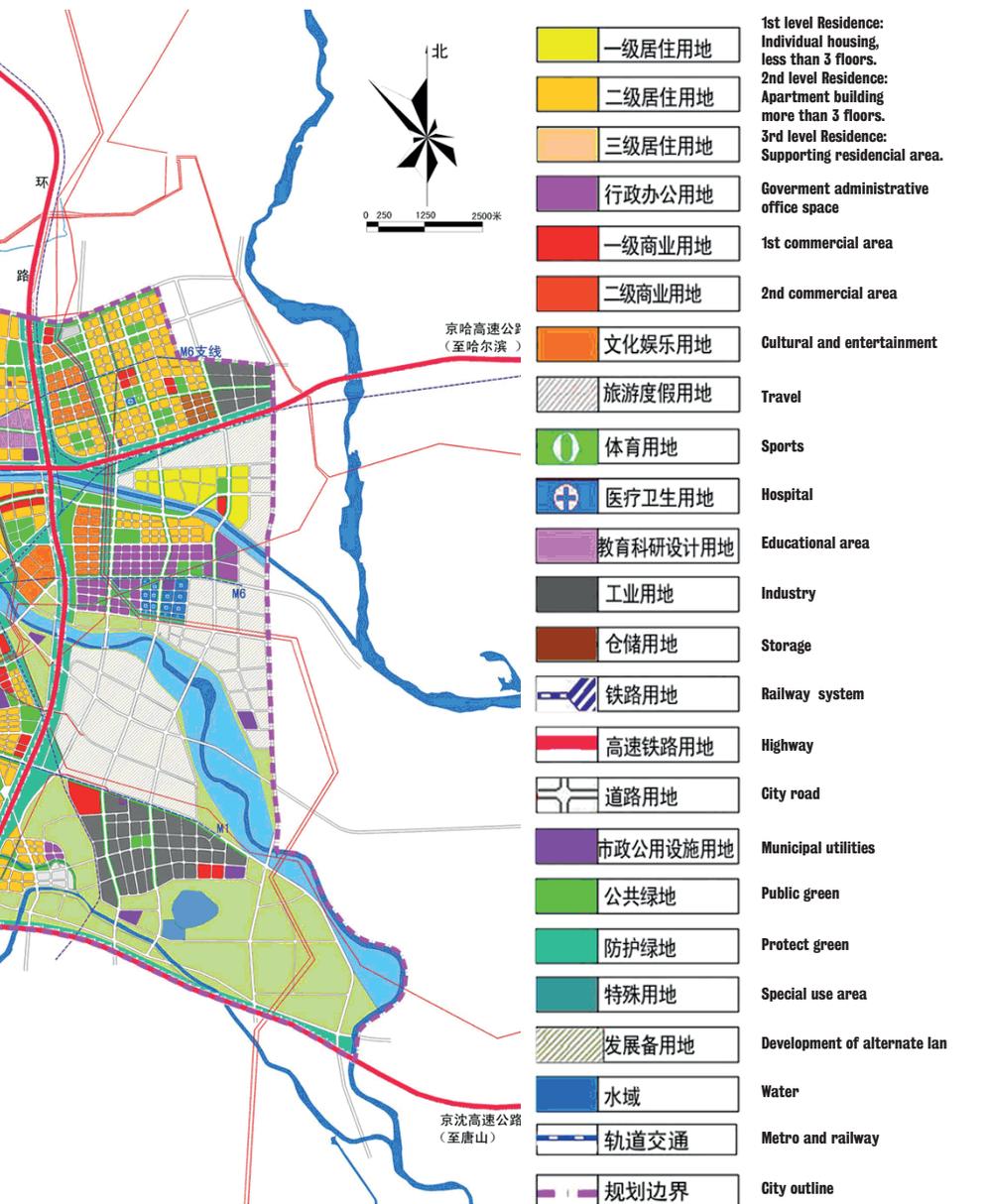
However, in and around the Beijing New East station area the capacity of public transportation is a challenge. The daily transportation flow from Tongzhou to the Beijing inner 4th ring area has already exceeded the capacity of the existing passengers from other districts. Around 30% of Tongzhou inhabitants need go to the inner 4th ring area every day. Nearly 100% of people who go by public transport will choose the metro system.

The questions the work week will need to address, among other, are:

- How to develop Tongzhou's station area to meet the city's ambitions to become a smart city?
- How to apply green planning principles?
- How to optimize pedestrian networks and accessibility?
- How to improve public transportation between Tongzhou and Beijing inner 4th ring area?
- How to create two-way traffic during rush hour?
- How to develop more mixed use and diverse neighborhoods in Tongzhou in order to reduce the need for the metro system?
- How to make Tongzhou more self-sufficient in employment?



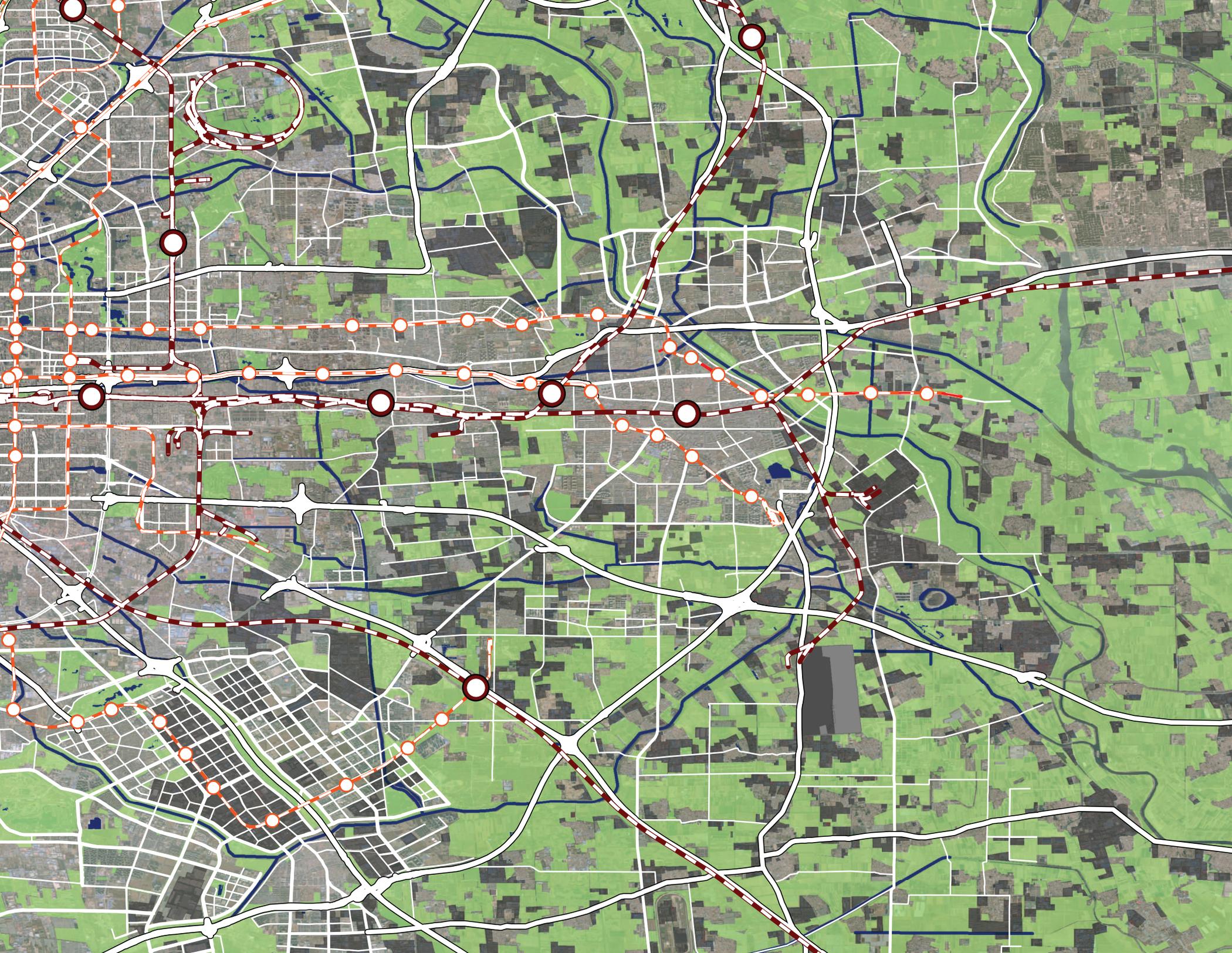
It had a population of 673,952 at the 2000 Census, and has seen significant growth to a population of 1,184,000 at the 2010 Census.

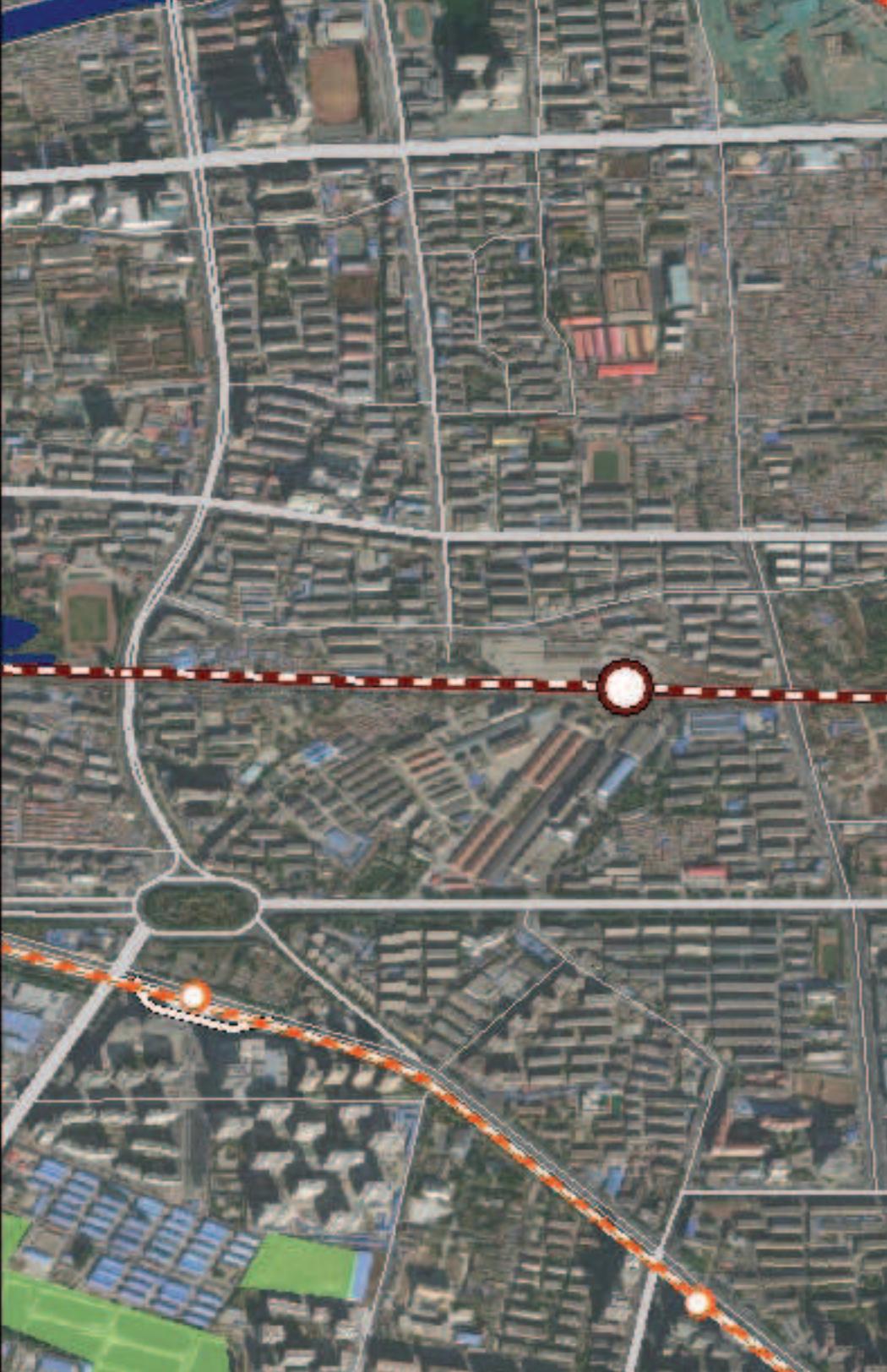


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Connection between Beijing ne







passengers)

this preliminary research, to be performed by the participants during the month. The questions are the existing situation, developments and development plans, challenges of smart city ambitions. Results of these researches will be inserted in this document and distributed among all participants as a reader.

Geographical scope of the assignment, landscape

To be researched, including defining issues and opportunities

Ecology, characteristics and challenges, air, water, soil, biodiversity

To be researched, including defining issues and opportunities

Population: density, demography, education and migration

To be researched, including defining issues and opportunities

Economy, economic sectors, goals and trends

To be researched, including defining issues and opportunities

Tongzhou economic, social, environmental relation with the city of Beijing

To be researched, including defining issues and opportunities

Mobility and connectivity, including the Beijing-Tianjin-Hebei transportation

To be researched, including defining issues and opportunities

Tongzhou development plan and its ambitions

To be researched, including defining issues and opportunities



highly city depended.

policy is to control population in central urban area in the near future. The migration of people in these cities have led to huge pressure on local facilities and it is important to clarify some definitions in population census in China. The population in the yearbook is the registered population of the city, regardless the floating population. However, sometimes floating population takes a considerable part of the total population, especially when the city is a municipality and need large amount of services. These flowing residents don't officially count as residents and cannot enjoy the welfare of local governments. Let's take Beijing as an example. Its registered population in 2014 is 12.45million; on top of that there are some floating population also living there. Therefore the total of actual residents of Beijing is 21.5million. The number is much bigger than the 16million planned in the Master plan (2004-2020). The same goes for the number mentioned in the Master plan of 23million, the modified limit in year 2020 by Beijing municipality government. In Tianjin, the residents by 2014 are 14million, composed by 8million registered population and 6million floating population. Because of the strong attraction of resources in the medium and small cities adjacent, such as Tangshan and Baoding, they attracted more population compared to the planned number. The Grand Beijing-Tianjin-Jingjinji region is the place with most attractive resources and

planning population growth by 2020. This is largely due to the existing urban development in China during which urban development is connected to city expansion. In the case of Chengde, the decrease of population in central urban area is the result of the conservation proposal of the Mountain Resort and its Outlying Temples and Cultural Heritage by UNESCO. The moved out population will be absorbed in the surrounding district.

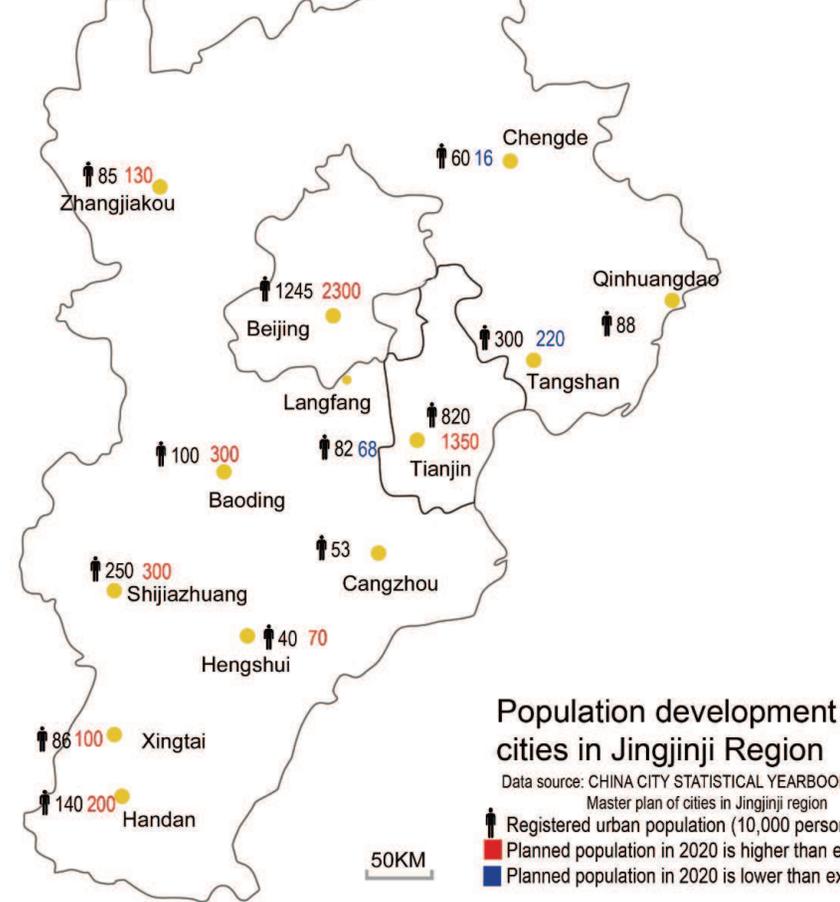


Figure 2 Population development of cities in Jingjinji Region

Part 2

The existing and planned rail network in Jingjinji area and Beijing-Tianjin-Hebei region

To stimulate integrated development in the Jingjinji region and to facilitate the development of the Beijing-Tianjin area, a regional integrated development proposal is an important part of the overall plan, a regional scale railway network plan and rapid railway corridors between cities in the Hebei province. In this network, four west-east corridors and the circle railway of Grand Beijing-Tianjin are already under construction. For more details of the railway network, please go to the appendix.



keleton in Jingjinji Region

way network plan, Beijing also released its own railway network plan. plan, it is a railway network with four levels that will be put into

l scale, Beijing is a central railway node for both conventional and HSR i, Beijing-Jiulong (Hong Kong) and Beijing-Guangzhou connections are h-south railway corridors in mainland China. However, the over-ijing also generate large amount of passing through passengers in the passengers to the northeastern regions (Mainly Heilongjiang, Jilin, ng from the south of China must transfer in Beijing; the lack of ijiakou and Chengde also leads to an unnecessary railway transfer flow

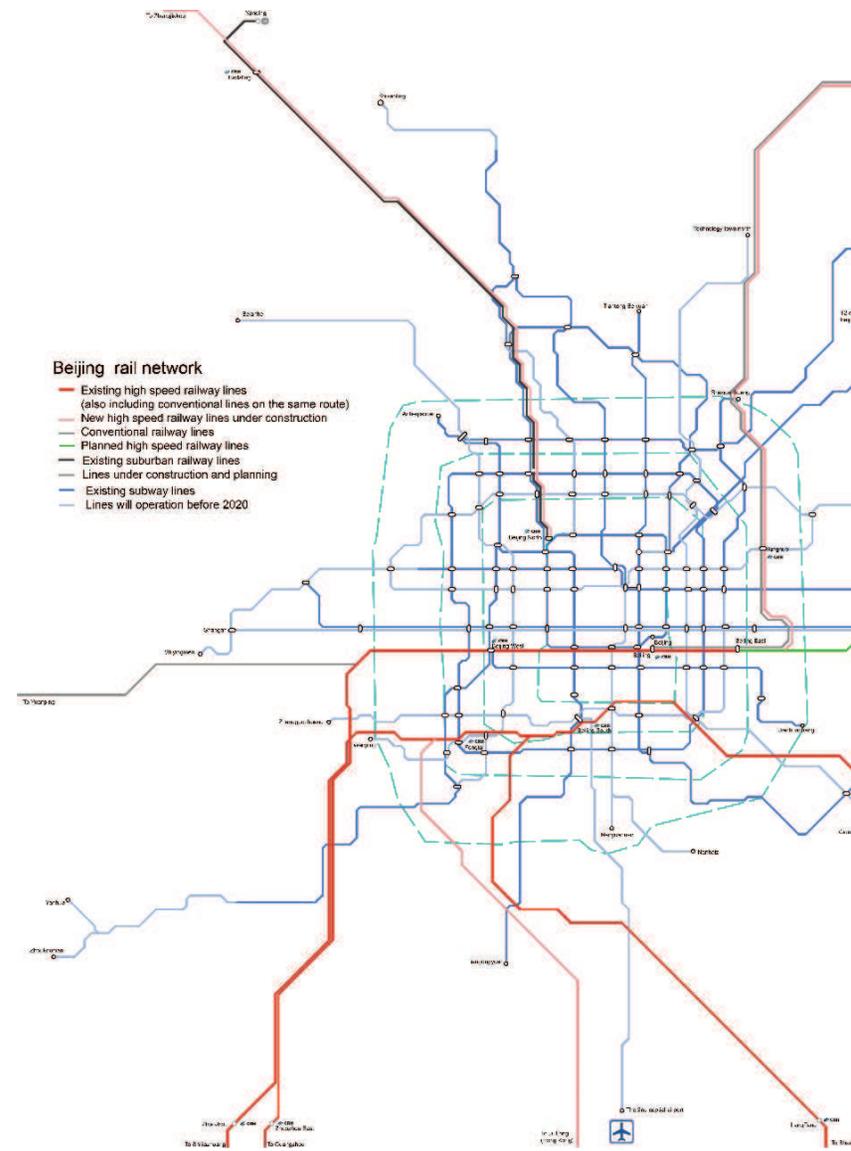


Figure 4 Rail network in Beijing

national/national scale >150Km	Beijing-Shanghai line Beijing-Guangzhou line	Beijing-Zhangjiakou HSR Beijing-Jiulong HSR Beijing-Shenyang HSR
regional scale connections between important cities within the Beijing-Tian-Jin-Ji region 100-150Km	Beijing-Tianjin HSR	Connection between the national airport and the 2 nd national airport
city/municipality scale 30-70Km	S2 line (Beijing North station-Shacheng)	S1,S3,S4,S5 lines a 1000Km network
urban scale distance between stations within the ring road: 1Km	527Km subway lines in Beijing	In 2016 the length of the whole network will be 660Km.

Subway system in Grand Beijing area

The subway network at the Beijing municipality level is in terms of scale a 'in between' project proposed by the municipality government. Up to now the existing running subway line is from Beijing North Station to Shacheng station. The other 5 lines will link the surrounding new towns.

Beijing already has a 527Km long subway network that in 2020 it will be expanded to cover the area within the fourth ring road (a rectangle area of 17.7Km*18.9Km), the average distance between stations will be within 30mins walk.

Connections to Beijing central district and other cities in Grand Beijing area are under constructions. As one of the 11 new towns around Beijing and the Beijing municipality administrative centre, the local transport network is taken as a priority not only to provide convenient mobility for the local residents.

The Beijing-Tangshan HSR, which will be further extended to Qinhuangdao, will provide a direct connection from Beijing to Tianjin and Tongzhou into the gateway to Beijing central district.

Line 15 will link Tongzhou with other adjacent new towns: Shunyi on the north and Huairou on the south. In the meantime it will provide a direct link between Tongzhou and

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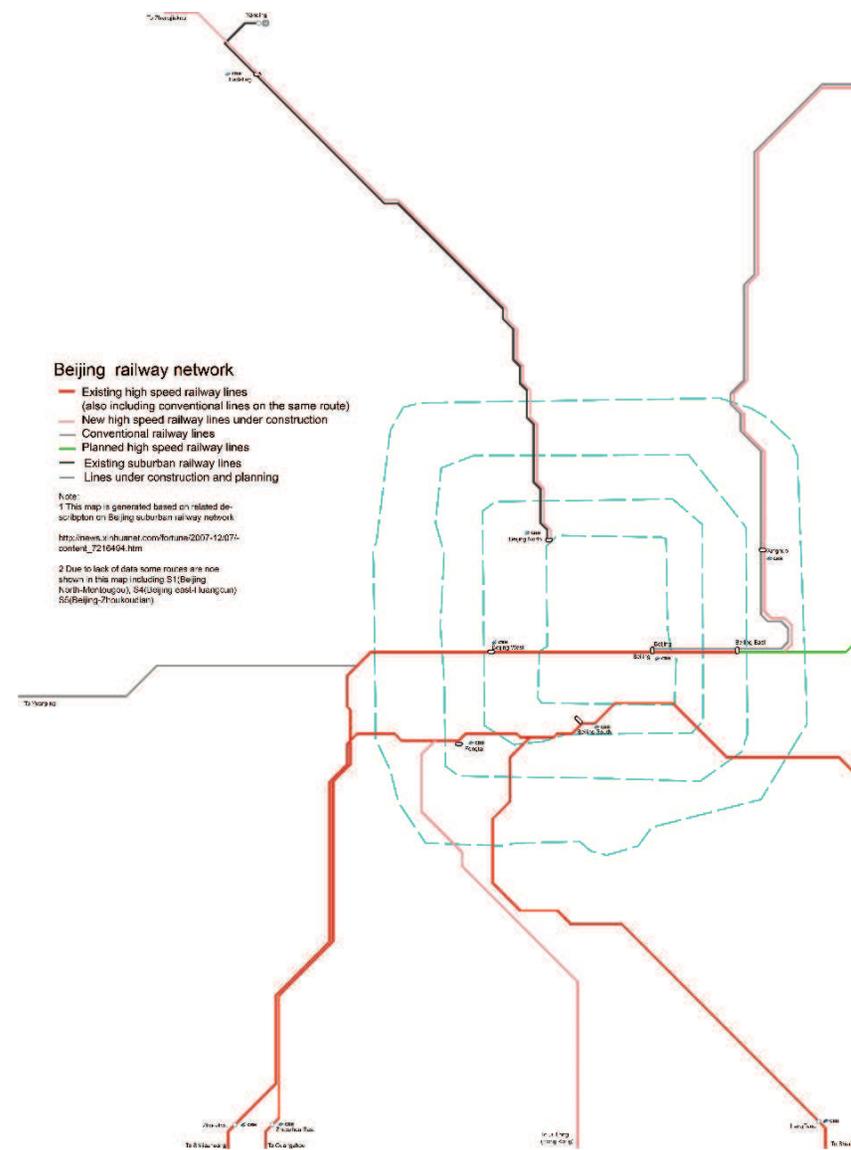


Figure 6 Railway network in Beijing at the national/regional/municipality level

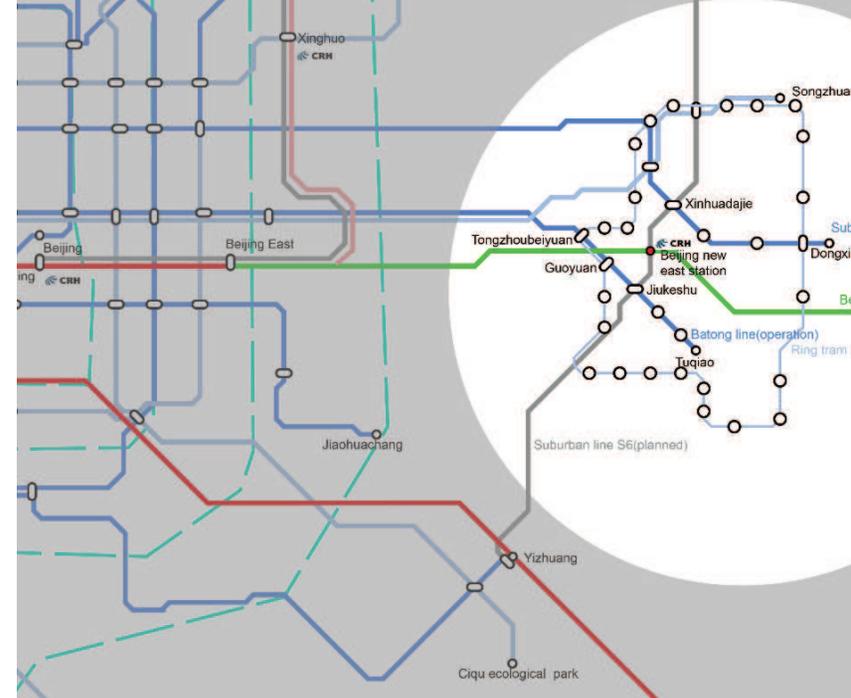
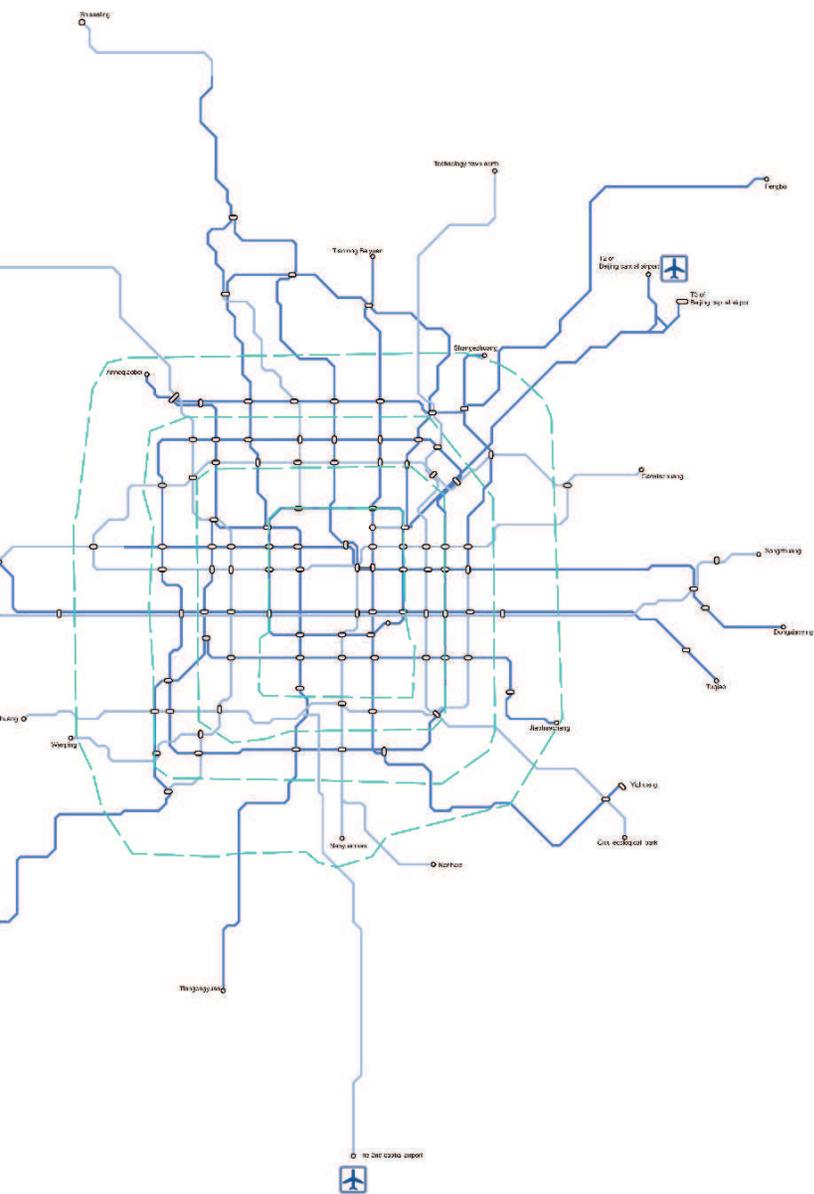
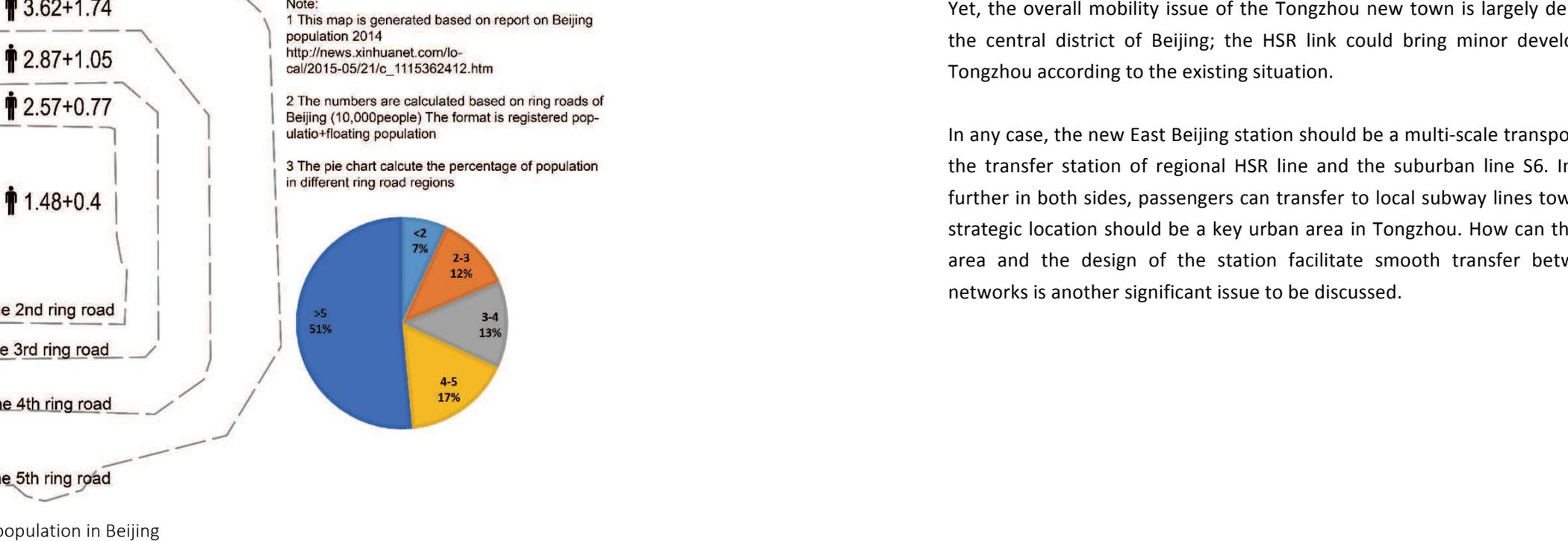


Figure 8 Planned railway network in Tongzhou by 2020

Considering this framework, it is clear that as a national/regional hub, Beijing is shouldering an exceeding transport load. Thereby the lack of municipal-level infrastructure, a huge amount of slow commuters between the central district and suburban areas, and a well-developed local subway network at the same time is suffering from congestion for commuters. Both transport experts and local residents have criticized the characteristics of Beijing railway system. Obviously transport network congestion is within the “big city disease” in Beijing; the over accumulated resources and urban sprawl without management are here the core problems. The population in Beijing (Figure 9) shows a dramatic radial population growth to the periphery, as many people live outside the fifth ring road. However, the high quality public facilities, national key universities, research institutions, high level hospitals and government offices are located in the central urban district, within the fifth ring road. How to manage these resources is a huge challenge for Beijing.



Tongzhou and some critical issues

It can be observed that the mobility and connections between Tongzhou and Beijing should be improved. The relationship with central Beijing and Beijing area.

According to the Master plan 2005-2020) the expected population in Tongzhou central area is 1,000,000 and the total population in Tongzhou area (including rural and urban) is 1,191,000. Compared to the actual figure at the 2010 Census, which is 1,191,000. Almost been achieved. However, considering the 30% of local residents are commuters from the inner city for their work every day, Tongzhou is still a "sleeping city". In the future, after the move of Beijing municipality administrative center to Tongzhou (specific time table has not been fixed yet), and with the strict population control in the central Beijing area, Tongzhou could be tending to an independent self-sufficient city. However, the links with central Beijing are still critical. For working and recreating there. However, the links with central Beijing are still critical. For working and recreating there. However, the links with central Beijing are still critical. For working and recreating there.

Yet, the overall mobility issue of the Tongzhou new town is largely dependent on the central district of Beijing; the HSR link could bring minor development to Tongzhou according to the existing situation.

In any case, the new East Beijing station should be a multi-scale transport hub, the transfer station of regional HSR line and the suburban line S6. It should be further in both sides, passengers can transfer to local subway lines towards the city. The strategic location should be a key urban area in Tongzhou. How can the station area and the design of the station facilitate smooth transfer between different transport networks is another significant issue to be discussed.

	In urban district (10,000 people)	Product (million yuan)	The first industry	The secondary industry	The tertiary industry
	1245.2	1950056	0.68	22.05	77.26
	821.7	1437016	0.84	50.4	48.76
	252.4	486365	0.56	26.02	73.42
	302.9	612121	6.21	61.18	32.6
	88	116875	1.41	38.72	59.87
	85.3	131699	2.74	50.2	47.06
	58.9	127209	2.11	56.03	41.86
	82.3	301298	5.46	34.57	59.97
	106.19	290431	1.23	64.81	33.95
	53.4	301298	0.88	50.70	48.42
	41	107023	6.72	61.52	32.21
	86.8	160457	1.95	53.81	44.25
	139.4	306150	0.90	53.43	45.67
	1297.4	87203197	2.98	49.14	47.88

		Handan			
			Beijing-Shenyang HSR		
			Beijing-Shijiazhuang HSR		
Four west-east lines	Qinghuangdao-Chengde-Zhangjiakou corridor	Qinhuangdao, Chengde, Zhangjiakou	Zhangjiakou-Tangshan railway		
	Beijing-Qinhuangdao, Beijing-Zhangjiakou Corridor	Qinhuangdao, Tangshan, Beijing, Zhangjiakou	Beijing-Baotou railway		
			Beijing-Yuanping railway		
			Beijing-Zhangjiakou HSR		
			Huhehaote-Zhangjiakou HSR		
			Beijing-Tangshan HSR		
	Tianjin-Baoding	Tianjin(BinHai)	Tianjin-Bazhou railway		

Plan of railway network in Jing-Jin-Ji area							
Railway lines	Name of the railway	Conventional (<120Km/h)	HSR (>120Km/h)	Operation	Construction	planned	Notes
Qingdao, Tangshan, Binhai (a), Zhou	Tianjin-Qinhuangdao HSR						
	Tianjin-Shanhaiguan Railway						
	Tangshan-Caofeidian (new area of Tangshan) Railway						Mixed with cargo
Beijing, Tang, Jin, Zhou	Beijing-Shanghai Railway						
	Beijing-Shanghai HSR						
	Beijing-Tianjin HSR						
	Beijing-Tianjin HSR(extended line)						Planned operation Aug 2015
	2 nd Beijing-Tianjin HSR						
Beijing airport, Tang, Shui, Chengde, Jing,	Beijing-Jiulong railway						
	Beijing-Jiulong HSR						Planned operation 2020
	Beijing-Guangzhou railway						

	corridor	Area), Baoding, Langfang			
			Tianjin-Baoding HSR		
	Shijiazhuang-Cangzhou Corridor	Shijiazhuang, Hengshui, Cangzhou(Huanghua harbor)	Handan-Huanghua HSR		
Shijiazhuang-Jinan HSR					
A ring around the grand Beijing	Ring railway around Grand Beijing area	Chengde, Langfang, Zhanjiakou,	Langfang-Zhuozhou railway (via the 2 nd capital airport)		
			North ring railway of Beijing		

Commissioners

Municipal Commission of Urban Planning (BMCUP) - t.b.c.

The Municipal Commission of Urban Planning is one of the government departments of the Municipality of Beijing. It is responsible for the research and realisation of all urban and rural planning within the municipality of Beijing. It also participates in the city's economic and social development planning; it is responsible for the laws, regulations and technical standards; and the evaluation of all bids and tenders.

www.bj.gov.cn

Industries Fund NL

The Industries Fund NL is the cultural fund for architecture, design, e-culture and every other cultural crossover. The Fund was initiated in 2013 as a new type of cultural fund that operates at the cutting edge of culture, economy and society, with a new sphere of activity: the creative industries. This encompasses the applied arts, e-culture and gaming, product design, fashion and design, architecture, urban planning and landscape architecture. The creative industries influence our entire physical and virtual reality. Everything that surrounds us is conceived, made. The Fund's task is to continue renewing the rich tradition in the creative industries that the Netherlands boasts.

On the initiative of the Ministry of Education, Culture and Science and the Ministry of Foreign Affairs, with support from the Ministry of Economic Affairs, a programme is being set up to expand the international market.

Developing a Sino-Dutch Approach for Sustainable Urbanisation is one of the projects within the internationalization programme.

www.ontwikkelingsfondsnl.nl

Wu Chen

Beijing Institute for Architectural Design (BIAD), Beijing

Prof. Wu Chen is the Design Principal and Deputy Chief Architect at BIAD. He is the former chief urban planner of Beijing who was responsible for the master plan for post war extension of Beijing. Wu Chen is also professor at Tsinghua University. He is very interested in expanding his work to Europe and has a keen interest in establishing a professional network in the Netherlands and beyond.

Wu Chen is the curator responsible for the relation with the Chinese commissioning authorities negotiating the deliverables.

Wu Weijia

Tsinghua University, School of Architecture

Department of Urban Planning, Beijing

Prof. dr. Wu Weijia is professor at the Department of Urban Planning and the deputy director of the Institute of Architectural and Urban Studies. His fields of expertise not only cover design, but also policy and regulations. He is also the chief researcher for the European research study, which was conducted together with Cambridge university.

Wu Weijia is the curator responsible for support for the workweek, such as arranging workshop facilities, the group of students assisting the experts during the workweek, the coordination of theory work, etc.

Ton Venhoeven

VenhoevenCS architecture+urbanism, Amsterdam

Mob: +31206228210 | Email: t.venhoeven@venhoevencs.com | web:<http://venhoeven.nl>

Ton Venhoeven is founder and principal at VenhoevenCS and former Chief Government Advisor on Infrastructure in the Netherlands. As former Professor in Architectural Theory at Eindhoven University, Ton Venhoeven also has a solid background in the architectural world.

Ton Venhoeven is the curator responsible for the relation with the Dutch commissioning stakeholders and the selection of the Dutch experts.

Zhang Bing

China Academy of Urban Planning & Design (CAUPD), Beijing

Dr. Zhang Bing is the chief planner and the senior urban planner professor at China Academy of Urban Planning & Design. He is also Secretary-General of the Academic Committee of the China Academy of Urban Planning & Design.

the department of planning and the office of planning research. He is specialized in rural spatial development strategy research, master planning, regulatory detailed conservation planning of historical cities, and urban underground space planning.

Architecture Design & Research Group (CADRG), Beijing

vice president and the chief architect at China Architecture Design & Research Group. He is a National Design Master and the Academician of China Engineering Academy, and received the CASIA 2007 Gold Award. He is Deputy Board Member, UIA (International Union of Architects), Vice President of the Architectural Society of China, Chief Architect of Yanqing (Beijing), and Professor at a/o Tianjin University, Nanjing University and Southwest University.

Organizations

University, Beijing

Peking University is one of the top universities in China. It is a member of the C9 league, an elite university alliance of mainland China. The School of Architecture has 4 departments: Architecture, Urban Planning, Landscape Architecture and Building Science & Technology. It has 10 (research) institutes, a/o the Institute of Architectural and Urban Studies. The School of Architecture publishes several magazines, such as Urban and Regional Planning and Architecture.

Institute for Architectural Design (BIAD), Beijing

Institute for Architectural Design (BIAD) is a state-owned architectural design research institute based in Beijing. Its practice has a broad scope, including a/o urban development planning, architecture, engineering, landscape design, interior design, construction and project management. It has more than 4,500 employees, and is still the largest foreign architectural office wants to build a project in China, it is obligated to work with one of the state-owned design institutes. Thus, BIAD has worked with many notable firms abroad, such as I.M. Pei, Perkins+Will, Mecanoo, Paul Andreu, Skidmore, Merrill. BIAD is one of the two state design institutes with which the BMCUP

China Academy of Urban Planning & Design, Beijing

The China Academy of Urban Planning and Design (CAUPD) is positioned directly under the Ministry of Housing and Urban-Rural Development, which oversees all urban development in the country. CAUPD is China's leading planning policy advisor and a think tank for the planning and design of the country. It is a national research and information center involved in the field of urban planning and architectural design. Its expertise is broad and interdisciplinary and includes urban development and planning, civil engineering, landscape design, infrastructural planning and design, water system planning and urban design. The institute is headquartered in Beijing and has several branches throughout the country. There are four main functions of CAUPD: to provide service to the Ministry, to undertake research and make planning standards and regulations, to undertake planning projects, and to provide public and social service.

VenhoevenCS architecture+urbanism

VenhoevenCS architecture+urbanism is an innovative Dutch design and consultancy firm for sustainable, integrated, and smart architecture, urban development and infrastructure. The office has an international portfolio of designs, research and consultancy projects, and is recognized with numerous publications, awards and exhibitions in the Netherlands.

Project coordinators

Huang He

Associate Professor at Tsinghua University, School of Architecture
Professor Huang's research and teaching interests are mainly in urban design, urban strategy, its theory, methodology, and role and application in urban planning and the development and spatial strategy of cultural and creative industries. She has published more than ten research articles on the national core journals, including "Cultural Resources and Urban Integral Development Strategy Based on Cultural Resources", China Architecture & Building Press, Beijing: 2010. With her leadership, she has successfully led several projects in culture and urban design related projects, include Second Prize in Beijing 16th Outstanding Engineering Design 2012: Spatial Planning for Cultural Facilities Distribution in Chaoyang District, Beijing; and First Prize in Beijing 15th Outstanding Engineering Design 2010: Environmental Engineering Planning of South-North Water Diversion (Middle Route).
Email: huanghe@mail.tsinghua.edu.cn

规划设计研究院，西部分院，城市规划师
16325 | Email: cfdx2003@qq.com; zhutao19890325@gmail.com

, CAUPD

in many projects which contains urban regeneration, spatial design etc. For instance:
design of Caiyuanba Intercity railway station.



贺凯

北京市城市规划设计研究院，规划师，硕士
Mob: 18810645171 | Email: 510514831@qq.com

Mr. He Kai

Urban planner, Beijing Municipal Institute of City Planning and

- Master of urban planning in Tsinghua University; Bachelor of Architecture in Tsinghua University.
- Recent project: Research of Integrative planning and implementation of Beijing; Master plan of Zhangjiawan town in Tongzhou; Urban Design of Xihongmen town of Beijing.

规划设计研究院，西部分院，规划师，硕士
37096 | Email: 1091943435@qq.com

, China Academy of Urban Planning & Design (CAUPD) Western Branch.

in urban planning and design, focus on the intersection of land-use in commercial and urban transportation in Hong Kong.
work in Master Plan of Guang Yuan, Si Chuan; Sustainable Development of Tai Po New Town, etc.; Urban Design of Yong Chuan District, Chong Qing; etc.
projects are Sui Ning's Green Development Plan and renewal of the old city.



董元铮，女

中国建筑设计研究院，建筑师

Mob: 15210000806 | Email: 408348243@qq.com

Ms. Dong Yuanzheng

Architect, Cui Kai Studio, China Architecture Design & Research Institute

- Bachelor of Architecture, School of Architecture, Tsinghua University
- Master of Architecture, China Architecture Design & Research Institute
- Specialist in architecture design and urban design
- Experience in public buildings and cultural buildings design
- Research on Contemporary Group Design in China

规划设计研究院，详细规划所，规划师，硕士
39960 | Email: xubiyong11@126.com

, Beijing Institute of City Planning & Design

in urban design and regulative planning in Beijing.
work in urban design projects in several railway station districts in Beijing.
work in general urban design projects in Beijing.



陈欣，女

中国建筑设计研究院有限公司，一合建筑设计研究中心，建筑师

Mob: 18515032596 | Email: chenxin1025@126.com

Ms. Chen Xin

Architect, China Architecture Design and Research Institute

- Got educated at The Chinese University of Hong Kong
- Specialist in urban design and architectural design
- Experience in Waterfront Design of Island West, Hong Kong; etc
- Participated in The Hong Kong Shenzhen Biennale 2013
- Participated in The Inside-out School 2014

规划设计研究院有限公司, 交通规划设计研究所, 规划师, 硕士
16226 | Email: yiming.chen89@foxmail.com

ing

of Transport Planning & Design, Tsinghua Tongheng Urban Planning and Design Institute

Urban Planning and Transportation Planning, University of Southern California

Geography, Beijing Normal University

on of transportation planning and urban design, travel demand forecasting modeling,

ation engineering, transportation project programming

experience:

anager for THUPDI CIM Transport Simulation Model, which simulates people's daily

avior at the mesoscopic level.

Transport Planner for projects including Nanyang Comprehensive Bonded Zone Transport

Transport Concept Plan for Modderfontain Development Project, the 2019 Yanqing

ural Exposition Transport Plan.

规划设计研究院有限公司, 详细规划二所, 规划师, 硕士

58704 | Email: 750834220@qq.com

r, Beijing Tsinghua Tongheng Urban Planning & Design Institute

in urban planning and urban design

ce with urban planning and design in several Chinese cities, such as Beijing, Sanya,

Hefei, Zhengzhou etc.

ce in the protection planning of traditional villages in Fujian.

working on the revitalization of land stocks.

规划设计研究院有限公司, 总体规划二所, 规划师, 硕士

04590 | Email: xieyu@thupdi.com

r, Beijing Tsinghua Tongheng Urban Planning & Design Institute (THUPDI); Master of

onal Planning in University of California, Irvine; Master of Urban Planning & Design in

Tsinghua

alized in master plan, regulatory detailed plan and urban design.

nt project: Master plan of Deyang, Master plan for Heze, Design guidelines for Meishan

regulatory detailed plan and urban design for Dongpo Island, Meishan, Regulatory

and urban design for Hangtian Town.



北京市建筑设计研究院有限公司, 中汇国际城市规划与设计
Mob: 13810150598 | Email: zh_k_j@163.com

Mr. Zheng Kaijing

Architect, Beijing Institute of Architectural Design (BIAD), Centre

- B.Arch., Tsinghua University
- M.Arch., China Architecture Design & Research Group (CADR)
- Experience in urban and architectural design
- Urban design along the Grand Canal in Wuxi, Jiangsu Province
- Neighborhood planning around St. Fenfangliuli in Beijing



郭磊贤, 男

清华大学建筑与城市研究所, 博士研究生

Mob: 13810480194 | Email: 1759334389@qq.com

Mr. Guo Leixian

PhD candidate, Institute of Architectural and Urban Studies, Tsinghua

- B.Arch., Tsinghua University
- Specialist in strategic spatial planning and urban design
- Urban design project experience:
- Comprehensive urban design of Suifenhe, Heilongjiang Province
- Kreativquartier, Munich / Yongsan Vertical City, Seoul / Wuzhen
- Pedestrianization of CBD 2# Road, Shenzhen / Central City



程思佳, 女

清华大学建筑与城市研究所, 硕士研究生

Mob: 15201519851 | Email: scarlett920617@163.com

Ms. Cheng Sijia

Master Candidate, Institute of Architectural and Urban Studies, Tsinghua

- B.Arch., Tsinghua University
- Specialist in strategic planning and urban design
- Urban design project experience:
- Comprehensive urban design of Jurong, Singapore
- The protection and transformation of Huguosi-Qianhai historical
- Urban design of Tanggu south railway station area, Tianjin



吴洁琳, 女

清华大学建筑学院, 硕士研究生

Mob: 15201435788 | Email: wjlxbd@qq.com

Ms. Wu Jieli

Master candidate, school of architecture, Tsinghua University

- Comprehensive urban design of Gaoliying
- Strategic Planning design of Bazhou
- Overall Urban design of green zone in Wuhou, Chengdu

co-founder, GROUP A
01515292 | Email: adam@groupa.nl | Web: www.groupa.nl
Main expertise en experience:

in Integrated Mobility and Infrastructural Projects, focused on comfort for the traveler
Urban Planning-, Office- and Residential Projects, combined with infra and commercial

to pursue technical interests, resulting in an approach that combines both pragmatic,
and intuitive ways of designing
surrounding, urban texture and landscape, plays an important role in projects
Lecturer at the Delft University of Technology (1999-2002)
Co-founder GROUP A, together with Folkert van Hagen and Maarten van Bremen (1996)
Lecturer in Architecture at the Academy of Arts and Architecture, Rotterdam (1996-1998)
Lecturer in Urban Planning at the University of Applied Sciences Rotterdam (1996)

Arnoud de Waaijer
Bureau de Waaijer
01525803 | Email: arnoud.de.waaijer@hotmail.com | Web: www.arnouddewaaijer.com
Main expertise en experience:

Independent architect and urban consultant/ designer.
Researcher at the Delft University of Technology, Delft, the Netherlands
Specialized in urban research on the levels of landscape, urban development, infrastructure and
TOD and transit locations.
In prime research projects in the Netherlands on urban development and urban
Ph. D. in Architecture and Urban Planning from the IUAV, Venice, Italy (2011-2014).
Lecturer in Architecture at the Delft University of Technology, Delft, The Netherlands (2002-2008).

Thijs van den Donk
Co-founder, transitionLAB
01512681 | Email: thijs@transitionlab.nl | web:www.transitionlab.nl
Main expertise en experience:

Specialized in research by design projects
Designing prototypes in relation to regional economy, water management, urban
Transition, energy transition and mobility
Co-founder transitionLAB in 2014
Specialized in research by design at the ArtEZ Academy for Architecture
Lecturer and designer at VenhoevenCS architecture and Urbanism (2011-2014)
Lecturer and researcher at Studio Marco Vermeulen, Rotterdam (2007-2011)
Lecturer at the Hong Kong University of Technology (2009)
Lecturer and designer as an architect at the Eindhoven University of Technology (2008)



Merten Nefs
Urban researcher, Deltametropolis Association
Mob: +31625133560 | Email: merten.nefs@deltametropool.nl

Main expertise and experience:

- Master degree in Architecture at Delft University of Technology
- Post graduate course in Regional Planning at University of Twente
- Experience in urban and architectural design, strategic planning
- Expertise in Transit-Oriented Development, Metropolitan Land Use
- Expertise in Geographic Information Systems



Daniel Jongtien
Architect at Benthem Crouwel Architects
Mob: +31654780392 | Email: djongtien@benthemcrouwel.nl |
Main expertise en experience:

- Specialist in functional and architectural design of complex urban environments
- Extensive experience in many modalities of design, e.g. air quality, bicycle design, bicycle parking design and passenger flow design,
- Strong focus on designing transfer hubs in urban network,
- Integrated approach to design issues by analytical analysis,
- Specialized in complex design processes with multiple issues
- Graduate of Delft University of Technology (MSc. 2002)
- Part of the design team for Beijing Capital Airport Terminal 3



Nanet Rutten
Projectmanager and Businessdeveloper Smart cities
Grontmij (Sweco)
Mob: +31626934159 | Email: nanet.rutten@grontmij.nl | web:
Main expertise en experience:

- Works as projectmanager/businessdeveloper at Grontmij (Sweco) in the Consulting & Engineering industry with world class experience in infrastructure & roads, sustainable buildings and water that also holds an MSc in Urban Planning
- Expert on TOD, specialised in relation with regional scale and urban design
- Urban design challenges of different Dutch stationareas (TOD) in the Netherlands
- Researcher at Delft University of Technology on topic of Regional Planning in the Netherlands (2011)
- Graduated (Spatial Planning and Urban design) at the Delft University of Technology in the Netherlands (2010).

Room Msc

Architect, The Cloud Collective
043224 | Email: gert@thecloudcollective.org | web: www.thecloudcollective.org
Main expertise en experience:

Structural architecture (Safe and comfortable pedestrian areas, Sustainable technology, Urban infrastructure)
Renovation of existing buildings and neighbourhoods (Heritage, Vacancy, Restoration, Urban regeneration)
Hubs (Airport, Train station, Hospital)
Partner and Co-Owner at The Cloud Collective
Lecturer & studio critic at different Schools for Architecture (Eindhoven University, Fontys Academy Tilburg)
Diploma: Architecture, building and planning (with honours), Eindhoven University of Technology (2009)

Schaafstal in Pinna MSc Arch

Principal architect at NEXT architects Beijing
01220729 | Email: schaafstal@gmail.com | web: www.nextarchitects.com
Main expertise en experience:

Working and studies in China since 2006.
Over 200 designs in urban planning, architecture, interior, exhibitions and products.
Participant of multiple workshops including VANKE (housing with a mission) and Shenzhen Biennale
Lectures for Chinese newspaper and lectures throughout China. Latest at the Dutch Embassy as ambassador residency in Beijing.
Graduated from Architecture from Technical University Delft.
Main interests in human condition, social relations, technical development and parametric design.

Architecture+urbanism, Amsterdam

042521 | Email: ligubye@gmail.com | www.venhoevencs.nl
Main expertise en experience:

Specialized in interior concept making.
Experience in urban architecture, urban design, interior architecture project in different culture and geographical background, China, German, France, India, etc.
First prize in Competition "Brede school, Uithuizen" with Uarchitects.
Thesis on "Facing massive contemporary apartment block in China, what we can learn from the quadrangle" - Graduation research and design.
Experience on Beijing new east station area development.
Interior architecture at AKV St.Joost academy with Master degree
Completed master course at Fontys Academy of Architecture and Urbanism in Tilburg



Bart Dijk

Landscape architect, project manager at OKRA
Mob +xxxxxxxxxx | Email bartdijk@okra.nl | web: www.okra.nl
Main expertise en experience:

Urban planning and landscape architecture related to river projects
Large scale urban public realm projects
Specialist in integration of recreation and ecology and urban planning



Dr. arch. Roberto Cavallo

Principal and co-founder STUDIO-AI, Amsterdam
Director of Education, Faculty of Architecture and the Built Environment, Delft University of Technology
Associate Professor Department of Architecture
Mob: +31639251034 | Email: rc@studio-ai.nl | website: www.studio-ai.nl
Main expertise en experience:

Expert on the relationship between infrastructures and architecture
Expert on complex territorial and urban projects on several scales
Expertise on transformation and refurbishment of several built environments
Special focus on keeping intervention strategy sound on the different scales
Experience in thinking, organizing and running of important international seminars.
Experience in setting up and running of multidisciplinary research projects in close collaboration with practice
Author of several national and international scientific publications

- of the project
- preparing and organising the workweek
- selection process of Dutch experts
- selection of Dutch and Chinese experts
- plenary briefing for Dutch experts
- preparation session in Beijing for project coordinators
- plenary brief for Dutch experts

workweek TOD New Beijing East Station

Week

Elements; lectures, field visits, debates, presentations, work sessions, and networking. It will have a good balance of active/passive, plenary/parallel and formal/informal

Initially, we will divide the project into three parts, each part allocated to a different

with a plenary brief on the proceedings of the workweek and the explanation of site visits with explanations by local stakeholders.

Workshops take place. Each day, experts will attend workshops in the morning and in the afternoon. A total of 9 Tsinghua University students will be available (3 split into drawings, graphs, etc. They will perform extra research if needed.

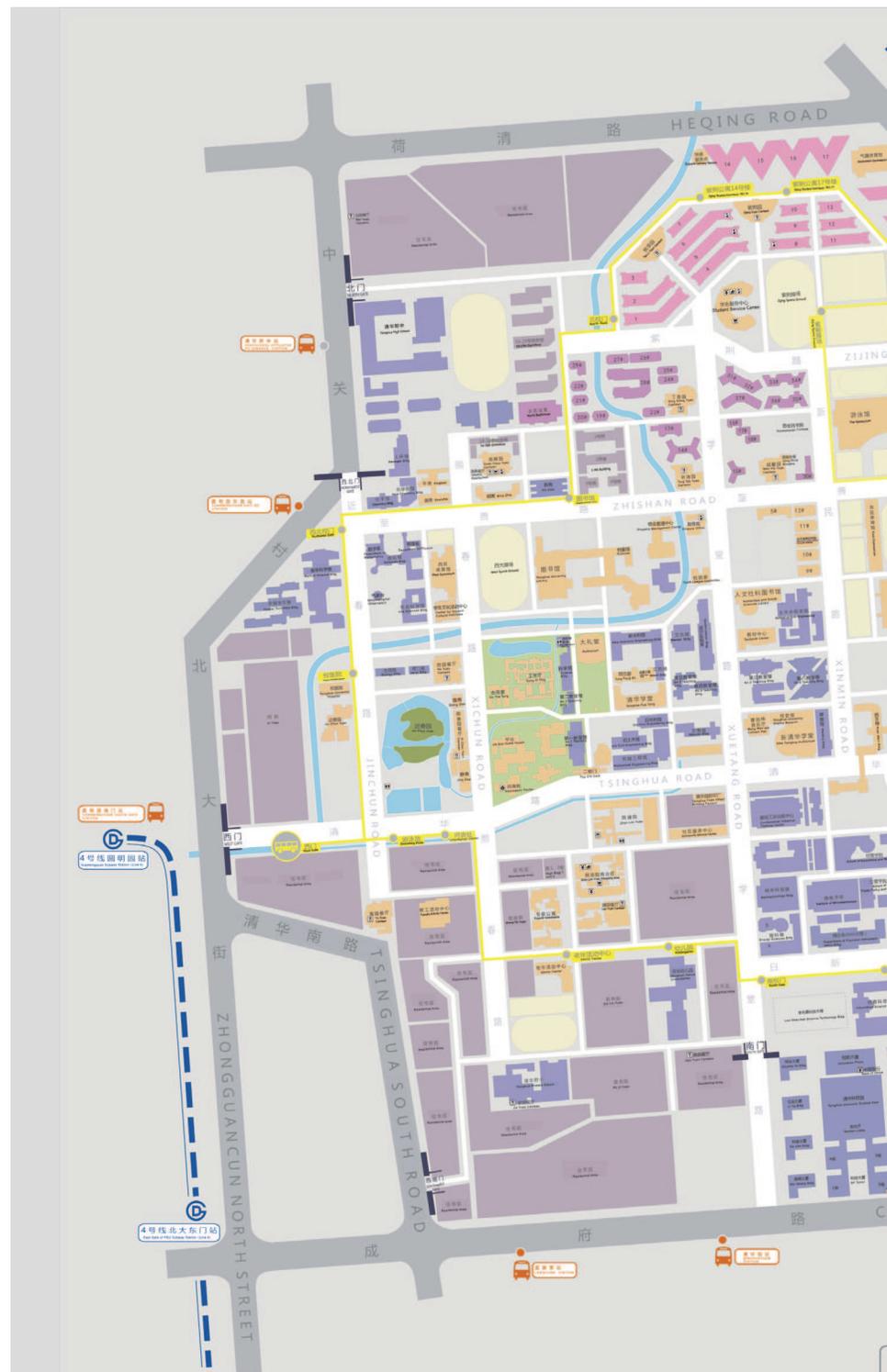
Roundtable with visiting experts. At this occasion, the preliminary results will be an opportunity to invite important stakeholders that cannot be invited as a bank, MoHURD, CAFA, UPSC, China Railway Company).

Presentation of the preliminary results and explanation of the next steps. This presentation party.

Guangcun E Rd, 1号院5号楼



As last year, Tsinghua University will offer its facilities for presentations, workshops, week.



creative industries fund NL

Environment
Science



Ministry of Infrastructure and the Environment



Ministry of Education, Culture and Science

VenhoevenCS

architecture+urbanism



Gemeente Utrecht

Fakton



THE WORLD BANK



Embassy of the Kingdom of the Netherlands

研究院有限公司
ARCHITECTURAL DESIGN



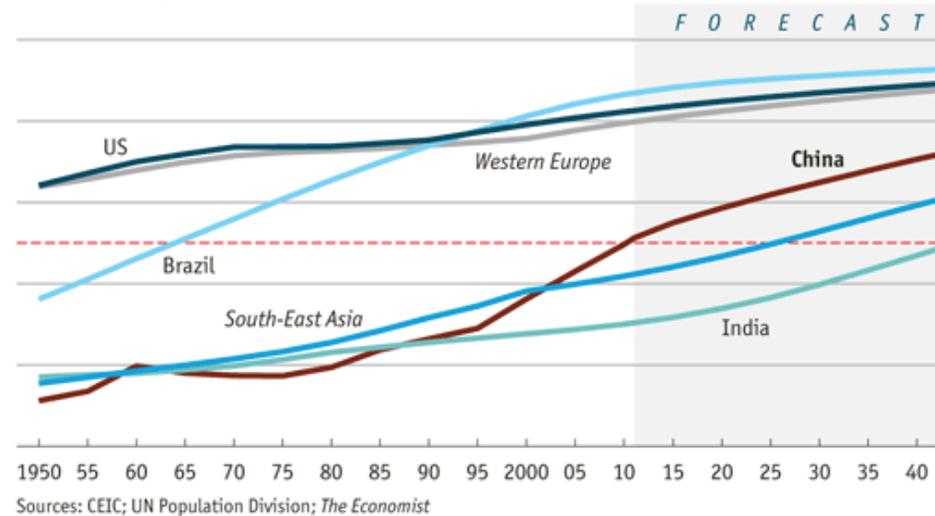
For China:

- Contributing to possible solutions to the problems of contemporary urbanization
- Creating opportunities for Chinese experts to develop their knowledge in the field of urban planning, solutions, and in TOD in particular;
- Contributing to the development of a creative economy;
- Creating opportunities for Chinese designers and other experts to develop a network in China;
- Increasing mutual understanding between Chinese and Dutch approach.
- Develop collaboration at university and government level between China and The Netherlands

For The Netherlands:

Urbanisation

Population living in urban areas, % of total



- Creating opportunities for Dutch experts to develop their knowledge in the field of urban planning, solutions, and in TOD in particular;
- Creating opportunities for Dutch experts to develop a network in China;
- Displaying and promoting the added value of the "Dutch Integrated Planning Approach" particularly in Beijing;
- Displaying and promoting the work of Dutch designers and other experts in relevant urban planning and Beijing in particular;
- Increasing mutual understanding between Chinese and Dutch approach.
- Develop collaboration at university and government level between China and The Netherlands

...an, offices or other amenities ... is an increasingly important urban form. TOD is ... developed countries that are transitioning from suburban to urban and for develop- ... ing and have to deal with rapidly growing number of private cars. ... develop attractive and sustainable, but also competitive cities. Economic sustain- ... eezating economic activity and land value is key to this type of sustainable develop- ... state market responds, generating substantial increase in property value. Such ... Land Value Capture (LVC) mechanisms to finance transit as well as improve-

...elopment ... rian as the highest priority ... eature of town center ... ure of uses in proximity including office, residential, retail, civic uses ... evelopment within 10-minute walk circle surrounding train station ... ystems including trolleys, streetcars, light rail, and buses ... ycles, scooters, rollerblades as daily support transportation systems ... ing inside 10-minute walk circle around town center/train station

...nd play ... nd driving ... njuries ... g on transportation, resulting in more affordable housing ... e walking, and less stress ... y values ... stomers for area businesses ... e on foreign oil ... nd environmental destruction ... , increased incentive for compact development ... g roads and sprawl ... a economic competitiveness

... circular economy. A microcity is a 2.0 version of the old neighborhood, village, or ... defined area at walking or cycling distance and/or a certain number of inhabitants ... and facilities. Think roughly of a size between 10.000 and 100.000 inhabitants. TH ... ecessarily need to coincide with current neighborhood or district borders.

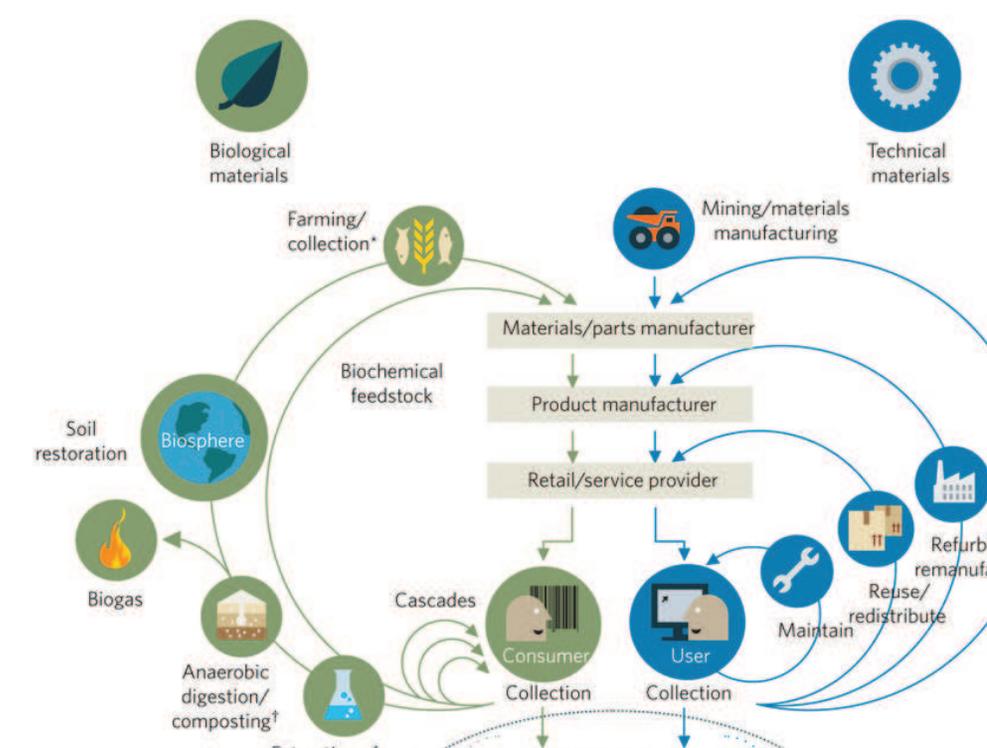
To avoid unnecessary mobility and to optimize the use of residual flows, this Micro ... local metabolism and a MicroCity that can serve as building block for the smart u ... ent part. Production and consumption are balanced as much as feasible, waste b

With these principles the Smart MicroCity becomes the basic unit of Smart Urban ... and Smart Urban Regions. What cannot be processed or produced at the MicroC ... higher scale levels. Transportation of people and goods is efficient and sustainabl ... development, public space, slow non-motorized traffic, public and collective tran ... timodal hubs and traffic corridors.

By well targeted inventions and investments Smart MicroCities' metabolism can ... sufficiency and diminishes dependence on larger scales and networks. Decision m ... secures optimal and multimodal tuning between spatial development and mobili ... between different levels of urbanization.

In this approach we see opportunities for a governance, management, business, ... model that connects the different sectorial themes and realms in the most optim

Sustainable development and operations of MicroCities can be managed by a nei ... operations company, a community farmer, a homeowner association or any othe



intelligence and metabolism of a given area in a way that is affordable, sustainable and applicable. To apply this knowledge in new developments, in retrofitting of existing neighborhoods and cultures, we can quickly turn entire urban regions into smart, sustainable and resilient. The reuse of large scale infrastructure and non-renewable resources.

Therefore, the MicroCity at area level can form the basis of a new sustainability paradigm. The paradigm is optimized that currently do not function well because they are organized in a way that cannot be dealt with in an affordable, sustainable, way, is up scaled to a higher level and done in a better way. This can be the regional, or any other higher level as long as it is done in a better way. MicroCity as notion can become the missing link between top down planning and management.

MicroCity coincides with the principle of smart grids in the energy sector. In a smart grid the production of energy producers and consumers are matched at the local level with the resulting in reduced energy demand and transmission losses on the larger networks. This operating principle can be translated into other sectors such as mobility, care and cure, waste treatment, resulting in ground-breaking projects.

Take the Kulliye, an Ottoman building complex which - next to its religious meaning - is integrated with public facilities like restaurants, hotels, libraries and schools. Often such a complex is integrated, for example by connections with profit generating activities such as markets and services. Activities could be paid.

Take the Aomori Hills in Tokyo, a 'mixed-use city in a city'. The 'integrated community development' is done by other co-owners - including the original inhabitants and homeowners - on recurring basis. This can improve performance and attractiveness of the area without creating a fenced off area. The focus is on community building, sustainability and safety, while maintaining the open and

development in Tongzhou's New Beijing East Station is not about making a masterpiece, but about the construction of the new High Speed Railway Terminal. Instead it helps defining the opportunities for the future planning and construction of this station. The work is done as a method to explore the development potential for Tongzhou station and its area.

Research by Design helps us to:

- Specify and sharpen the project brief for a project or study area;
- Identify the opportunities for a project area so that they won't be overlooked;
- To define the boundaries of the spatial, societal, environmental and financial context;
- To formulate a vision for a project, which helps to initiate discussion and decision making;
- To anticipate on possible long term developments.
- To develop a sustainable Business Case

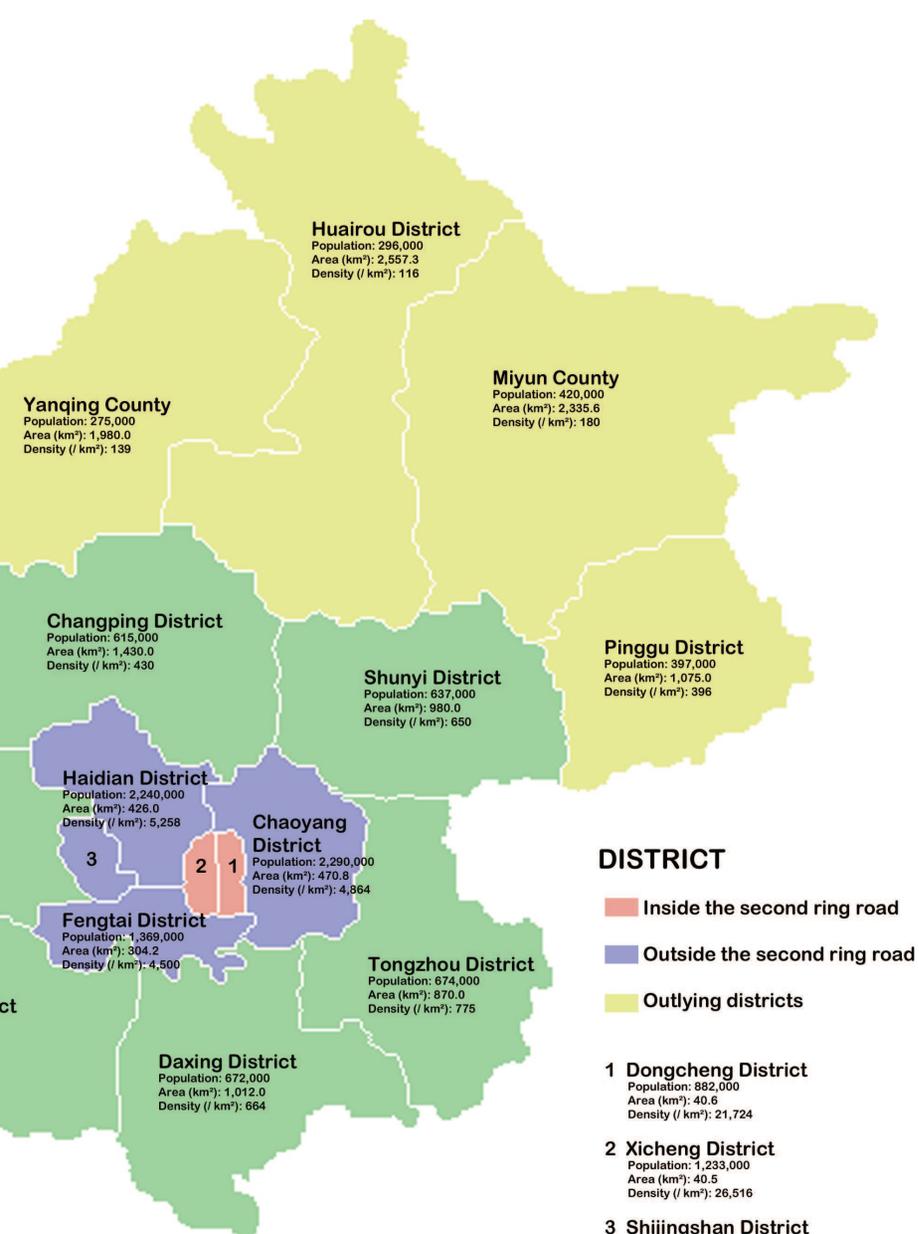
Research by Design defines:

- The project brief, the project context and stakeholders;
- The project process and the modality for collaborations with all stakeholders.

Research by Design visualises the different spatial scenarios for abstract choices of design. Through maps, models, diagrams and info-graphics, a possible future environment can be visualized. This is a tool for communication between planners, policy makers, designers and of course communication with the public.

Research by design can be used to deal with the complexities of Transit-Oriented Development, public development and public-private partnership.

Research by design is relatively new in China, this is one of the interesting aspects. In China, Chinese designers are used to immediately start with design work, on the other hand, in the West, research by design principles. The resulting exchange of design experiences can lead to a mutual exchange of methods, with for the Chinese more research in their design, and for the West more research.



DISTRICT

- Inside the second ring road
- Outside the second ring road
- Outlying districts

- 1 Dongcheng District**
Population: 882,000
Area (km²): 40.6
Density (/ km²): 21,724
- 2 Xicheng District**
Population: 1,233,000
Area (km²): 40.5
Density (/ km²): 26,516
- 3 Shijingshan District**
Population: 489,000
Area (km²): 89.8
Density (/ km²): 5,445

Outer Districts

1. Mentougou
2. Fangshan
3. Tongzhou
4. Shunyi
5. Changping
6. Daxing

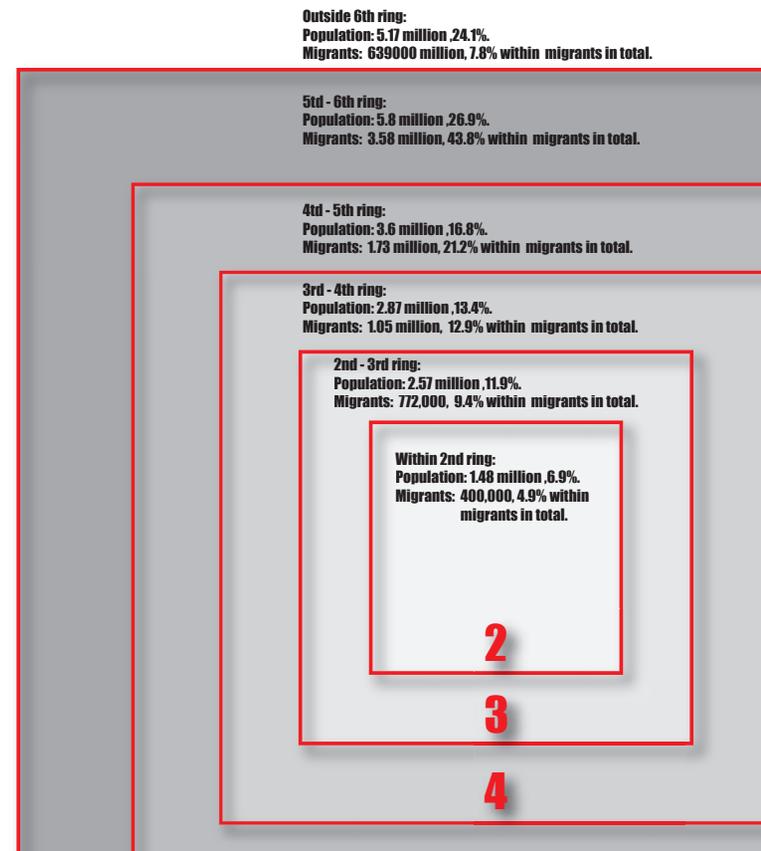
Rural Districts

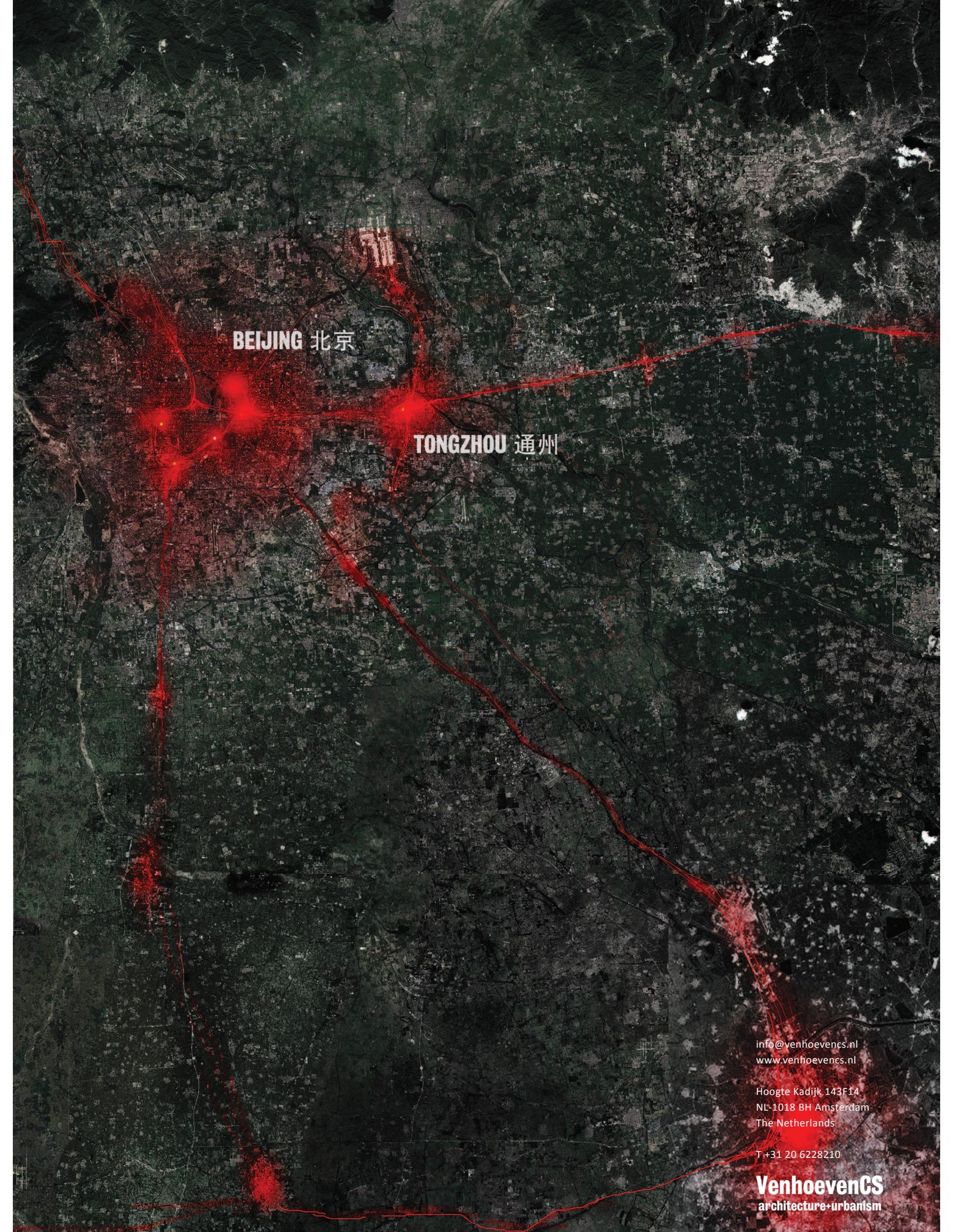
1. Pinggu
2. Huairou
3. Miyun
4. Yangqing

Area	16,410 km ²	12,587 km ²	
rural	15,042 km ²	rural	8,287 km ²
urban	1,368 km ²	urban	4,300 km ²
Population			
	1953	2,768,149	
	1964	7,568,495	
	1982	9,230,687	
	1990	10,819,407	
	2000	13,569,194	
	2010	19,612,368	7,100,000
	2013	21,150,000	
Density	1,300/km ²		

Economy: tertiary industry accounting for 73.2% of its gross domestic product was the first post-industrial city in mainland China.

Modal Share: Subway: 11.5%, Bus 28.2%; Car 34.2%; Taxi 6.6%; Bicycle 16.4%; Transportation Research Center 2010, Walking not included)



An aerial photograph of the Beijing-Tongzhou region, overlaid with a complex network of red lines and dots. The lines represent a network or infrastructure, with dense clusters around the city centers. The background is a dark, textured aerial view of the landscape.

BEIJING 北京

TONGZHOU 通州

info@venhoevencs.nl
www.venhoevencs.nl

Hoogte Kadijk 143F14
NL-1018 BH Amsterdam
The Netherlands

T +31 20 6228210

VenhoevenCS
architecture+urbanism