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A New Park for Shanghai

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Abstract
This article summarizes the urban proposal of the team led by Professor Estanislau Roca, consisting of professors and students of the Polytechnic University of Catalonia (UPC), for the International Student Urban Design Competition for Shanghai Railway Station presented in 2015 at the Haishang Cultural Center in Shanghai. Harvard University, the Massachusetts Institute of Technology (MIT), Tongji University, Cardiff University, Southeast University of Nanjing and UPC participated in the competition. The UPC team won a second ex aequo prize with MIT.
The UPC proposal represents the urban redevelopment of an extensive area located in the heart of the city of Shanghai, where the creation of a park comprising about 40 hectares was conceived. The park is designed to form a vast new space in the city, in an area covered by railroad tracks east of the Shanghai Railway Station, which form a great barrier that divides the Zhabei District into two disconnected parts.
In the framework of the Shanghai Master Plan 2020–2040, the metropolitan scale is reflected at the local level. The proposal reinforces the continuity of green and blue through strategies that connect the new park with other existing open urban spaces and rivers. Furthermore, it enhances ecological continuity and stimulates regeneration. The project contributes to improving problems with air pollution while at the same time making the currently adopted measures more economically sustainable.
Conceived from a holistic perspective, the idea is modelled on a harmonious, inclusive, friendly, smart, accessible, sustainable city networked through the state-of-the-art technology that is essential for such complex urban transformations. What is more, it rigorously pursues economic viability throughout each stage of implementation by guaranteeing that each phase finances itself while maintaining the ledger in a positive balance.

Keywords: urban green infrastructure, Asian downtown, inclusive city, urban zipper

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1. Introduction

In 2015, the Shanghai International Tendering Co. Ltd. and the Zhabei Planning and Land Resources Administration Bureau of Shanghai[1] launched the International Student Urban Design Competition for Shanghai Railway Station. Professor Estanislau Roca formed a team of professors and students of the Polytechnic University of Catalonia (UPC)[2] to participate in the competition. The project was presented in November 2015 at the Haishang Cultural Center in Shanghai. Harvard University, the Massachusetts Institute of Technology (MIT), Tongji University, Cardiff University, Southeast University of Nanjing and UPC participated in the competition. The UPC team won a second *ex aequo* prize with MIT.

The project developed by the UPC team is an urban park conceived from a metropolitan and local perspective in the centre of Shanghai. The area of the project is about 40 hectares and is occupied by railroad tracks, east of the Shanghai Railway Station, that divide the Zhabei District.

Figure 1. General plan and cross section of the proposed project. Source: UPC Team, 2015.

The proposed park aims to convert this space into an urban zipper, covering the railroad tracks in the western part and settling at ground level in the eastern part. To connect the park with the green corridor of Suzhou Creek and other components of

[1] The Zhabei Planning and Land Resources Administration Bureau of Shanghai is established as one of the departments of the municipal government of the Municipality of Shanghai.

[2] The UPC Team comprised: Dr. Estanislau Roca (team leader); Pablo Baena, Luis Bellera, Roberto Pérez, Aliaksandra Smirnova (project designers); Dr. Inés Aquilué, Dr. Julián Galindo, María José Masnou, Dr. Miquel Martí, Dr. Melisa Pesoa (professors); Gonzalo Bastardas, Alexandra Bovè, David Casado, Marina Cussó, Paula Esquinas, Hyeyeon Park, Renata Priore, Raimon Roca, Anna Ximenis, Zhengyu Xu (project collaborators); Qin Su, Dong Linlin (translators); Miren Aguirre, Ludmila Fuster, Adriana García, Ziao Jiang, Agustí Jover, Miquel Morell, Miquel Àngel Sala (collaborators).

the system, the plan proposes a regeneration of the urban fabric by improving the three roads: the North South Elevated Road, Xizan North Road, and Baoshan Road, all of which are considered to be important transversal arteries in this metropolitan landscape.

A new centrality is also created, where North South Elevated Road meets the railroad line, with eight mixed-use skyscrapers and important commercial facilities that expand into a new horizontal building across the railroad tracks, connecting the downtown area with the Shanghai Railway Station.

Next to the downtown area, the park spreads into a large plaza where a wide range of cultural, social, leisure and sports activities can be held. This plaza is bordered on one side by a grandstand at the base of an artificial mountain built from the debris generated by replacing and relocating defunct building material and new excavations. This mountain incorporates an access to the new intermodal metro Hub proposed for connecting the lines 3, 4 and 8 (which today only cross each other), thus making the public transport system more accessible. Another improvement that we propose involves remodeling the market and lilong located next to Baoshan Road.

The new structural park comprises five elements designed as a hybrid concept: nature, transport, commerce, leisure-sport and culture-technology, thus guaranteeing intense mixed-use throughout the day (programmatic hybridization).

The project, conceived from a holistic perspective—harmonious, inclusive, friendly, smart, accessible, and sustainable—is accurately described in this article. The further sections develop the ideation of the urban features of this contemporary and well-integrated project that could be an example for sustainable development in other Asian cities.

The requirements provided by The Shanghai Zhabei District Planning and Land Authority for the competition led us to think that the appropriate answer might be an equipped park that seeks to fix the area using a complex contemporary strategy. The following exposition of our proposal argues that remodelling the area is a metropolitan need and that it links to the green structure of the future Shanghai. The aim of the proposal is to create the Central Park of Shanghai taking into account the tradition of Chinese Gardens. Indeed, the article extensively develops the strategies followed to solve the requirements established by the promoters of the competition.

2. Historical approach and new objectives

2.1 Shanghai, a patchwork city

Shanghai was initially a small mercantile Chinese town, which originated in 1265 in a marshland area in the Lower Yangtze river area, and was built up by the imperial powers, which obtained territorial jurisdiction rights, after the end of the Opium Wars (1842 and 1848), to build a set of commercial and port enclaves. Shanghai became a prosperous trading, financial and manufacturing city, as an important port commanding coastal and ocean shipping as well as inland river shipping through the Yangtze.

The International Settlement and the French Concession areas in Shanghai and its successive extension areas built a diverse urban landscape within China, with unique architecture, urban infrastructure and public facilities in both of the foreign enclaves.

Its limits often coincided with physical geographical elements such as: the Yang Kang Pang canal, or Wusong and Hongkou streams in Zhabei district. These foreign enclaves defined independent city zones with very different character. Moreover, its autonomy produced certain urban discontinuity and spatial fragmentation. The Suzhou river has played a major role as an administrative limit between the British (in the north) and the American Concession (in the south) and finally both Concessions were merged during the International Settlement.
Outside this urban shaping process, Shanghai was configured by the addition of several urban areas which, lacking the cohesiveness of an overall organizing plan and urban model linking them all, framed a form of urban patchwork as its main structure. This urban legacy affected the layout and efficiency of its transport infrastructure system and the building of an interrelated urban structure and harmonious urban shape. At present some of its deficits still prevail in some areas of the city due to its past. The area of the competition suffers from this discontinuity and fragmentation, which has historical character.

2.2 Zhabei District: The old railway infrastructure in Shanghai
The Wusong-Shanghai (or Songhu) railroad was the first Chinese railway, connecting Shanghai with Nanjing and the north. It was first constructed in 1874, pulled down in 1877 and rebuilt the following year. It was bombed by the Japanese Army on January 28th, 1932. The southern railway station connected Shanghai to Hangzhou and Ningbo, in the south. The railway line, situated in the south of the Chinese City, began its operation in 1912.
The situation and layout of both railway tracks on the fringes of the foreign concessions conditioned the efficiency of their connectivity with the trading wharfs, and the foreign concessions.
The transformation of the city's urban fabric, the urban extension and the ambitious urban projects began in the 1990s, with the urbanization of the Pudong area as an important CBD district and cultural and international logistic area. Later, great events, such as the World Expo in 2010, were drivers of meaningful urban transformation. These events launched the recovery of the Huangpu riverside façade for public use and building of strategic new cross-river infrastructure connecting Puxi and Pudong zones. This process is still ongoing, seeking to transform and enhance functionally obsolete and undeveloped areas of the city and achieve a balanced, sustainable and competitive city for the 21st century.
The name "Zhabei" means "north of sluice." The name comes from two sluices originally located on the Wusong River (also called Suzhou creek) dating back to the Qing Dynasty (18th century). In 1863, after the opening of Shanghai, the Zhabei District Southeast region (North Station Street) was included in the United States concession (called the International Settlement), and Zhabei began to develop.
After the First Opium War and the Treaty of Nanjing in 1848, Shanghai was one of five Chinese cities to be opened up to British consuls, merchants and their families. Due to the development of its port since 1930, Suzhou Creek became an important shipping route, facilitating the transport of goods into the interior of China.
Due to its role as a commercial axis, several warehouses and factories were built along the river banks, making the region close to the river a significant industrial area.

However, the river was extremely contaminated with industrial waste. Recently, the authorities have taken measures to clean it and improve its environmental quality.

2.3 The Chinese Garden and the aim of the New Park

This idea of mixed-use development appears as a main feature in the design of the park, which is also inspired by the landscaping tradition of Chinese Gardens, such as Yuyuan Garden in Shanghai. Traditional Chinese Gardens are characterized by the accurate design of natural elements reinforced by a concatenation of built elements (pavilions, halls, towers) that are connected through paths and galleries. Thus, this new park recovers the idea of the green as structuring elements that unify the whole intervention. Traditional Chinese Gardens have more than 3000 years of history, and they were built under the rule of many dynasties. Traditionally, natural and built elements were harmoniously designed in such a manner that pavilions, halls, temples, towers, bridges and kiosks were structured to observe and contemplate the garden itself and its natural elements. Therefore, the gardens include a great variety of natural elements such as carefully selected flowers and trees (bamboos, lotus, etc.) and water, which has a central role in the design of lakes, small waterfalls and bridges. The artificial mountain and the rock garden are also key elements and, usually, a delimiting wall enclose the garden.

This New Park in Shanghai incorporates typical elements of Chinese Gardens, especially the importance of natural elements and the inclusion of an artificial mountain, which symbolically represents the centrality of the whole intervention. Walking and strolling through the New Park was rigorously planned: a pedestrian path, which connects the different elements, structures the whole area. Consequently, the built elements appear as well-designed scenes in the middle of the park.

In opposition to the traditional Chinese Garden, the park is open and not an enclosed garden. The proposal tries to include a new perspective on mixed-use and it aims to transform the area into an urban zipper while its natural structure maintains the influence of the Chinese Garden. The park mixes the traditional landscaping with the contemporary concept of an equipped park. The new functions of the equipped park expect to gain the influence that features of the traditional Chinese public spaces used to have, such as temples, teahouses and markets. Indeed, the park overlaps past and future using the design ability of the Chinese Garden tradition and the inclusion of an open, highly connected system of green elements linked to the Wusong River. This goal matches the objectives of the Master Plan 2020–2040, which defined the future development of the city. According to the Master Plan, we applied the ecological perspective in this development, which bases its design in a contemporary conceptualization of the Chinese Garden.

This idea of developing an equipped park, which contains plenty of public and mixed-use spaces, is both inclusive and innovative in the Chinese context, because it triggers new activities for the new generations and it breaks with the enclosure of the traditional gardens.

3. Urban analysis

From the very beginning of the development of the intervention area (1863), Zhabei district has been located in a strategic point of the city, close to Suzhou Creek which was a significant shipping route. Today, due to the important location of the project area within the city, the project will not only play a key role on a local scale but may also influence metropolitan development. Promoting the project area as a new urban centrality makes its design a complex process which includes aesthetical, ecological, social and economic aspects. This makes us responsible for executing a proposal that agrees with the general program of the city's development, meets social and economic demands, integrates into the urban fabric and connects currently segregated urban areas (northern and southern parts of Shanghai).

Creating a new public space within the city of Shanghai was challenging due to the need to consider both local and metropolitan necessities. The Master Plan 2020–2040 incorporated a green belt as part of its green infrastructure. The park was planned as a new connector within this green belt.

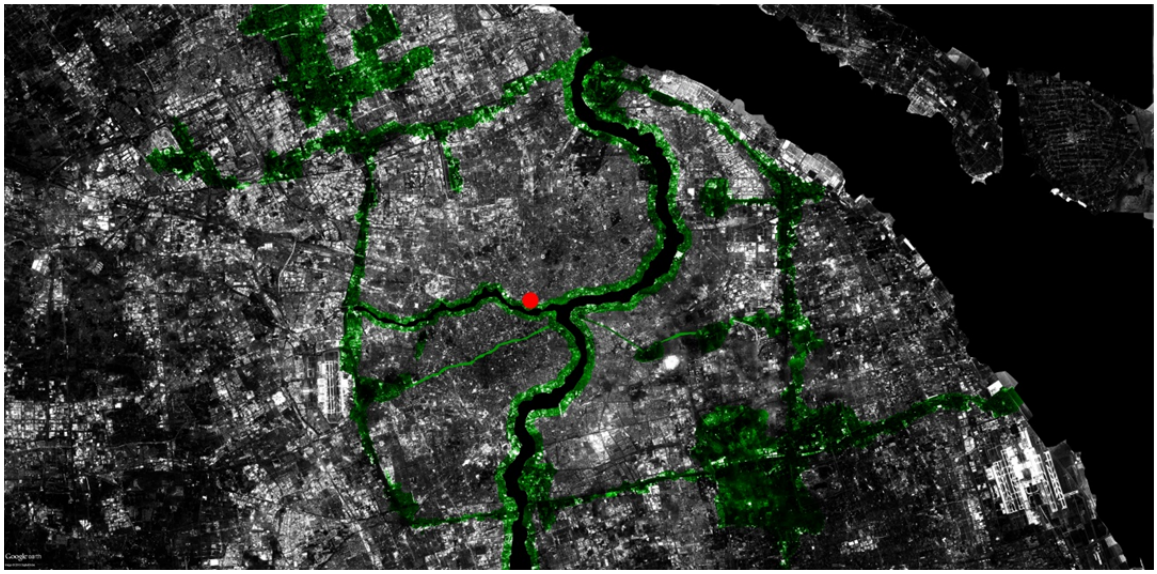

Figure 2. Situation plan in Shanghai. Source: UPC Team, 2015.

3.1 Metropolitan context

The rapid economic growth focused on technology and innovation, experienced in Shanghai in the last 20 years, has had a huge impact on social and environmental issues. The population increase demanded rapid development, which caused urban expansion. Consequently, this fast, urban growth has been accompanied by increasingly serious environmental pollution, which nowadays is one of the most relevant ecological problems of the region. Therefore, the current regional policy of Shanghai's administration focuses on ecological and sustainable development promoting urban foresting as a main regional program and developing a Green Map that proposes the creation of three types of green corridors:

- North to south (Huangpu river);
- East to west (Suzhou river and Yan'an Highway);

- Circle corridors (outer circle highway, middle circle highway and water circle).

Taking advantage of this green program in our project, we propose to combine traditional, technological and ecological development, preserving a popular lifestyle and focusing on innovative and ecologically friendly technological development based on sustainable and smart urban strategies. In other words, we are attempting to convert a currently abandoned area of the former railway station into an inclusive and equipped park that is capable of generating diversity and intensity, which are the principal characteristics of good urban life.

Nevertheless, to achieve these ecologically friendly, economically sustainable, technologically innovative and socially inclusive results, it is necessary to think of the project area in broader terms, starting with metropolitan strategies and incorporating our design into an overall regional and urban development program. For this reason, the tools that we suggest for the development of a metropolitan scenario meet the main goals of the Master Plan 2020–2040 and support the design and aesthetic ideas that we would like to develop in our project:

- Creation of green and blue continuity as a structural element for further urban development;
- Generation of a system of urban centres;
- Restriction of urban growth by applying renovation and rehabilitation strategies.

3.2 Metropolitan scenarios

Green and Blue Continuity

Traditionally, elements that organize the city into a unified structure have a lineal configuration and can be presented as natural (water streams and topography), semi-natural (green and fluvial corridors) or artificial (road systems) corridors. Due to the ecological orientation of the Master Plan 2020–2040, one of the main metropolitan strategies is the promotion of green and blue corridors as an element that will not only organize urban areas but will also:

- Function as protection and isolation, mitigating negative urban impact.
- Aid in biological conservation.
- Coordinate social functions, which act as a catalyst for citizens' activities.
- Decrease maintenance costs by creating a self-regenerative green system.

In the case of the Shanghai metropolitan area, the development of a self-sufficient green system can also be justified by the current configuration of big green patterns that almost form an outer green belt. By connecting the existing green areas with corridors proposed in the Master Plan 2020–2040 (Huangpu River, Suzhou Creek River and Yan'an Highway), we will approach one of the main goals of the ongoing greening policy—to improve the ecological situation of the region by creating an ecological continuum.

Figure 03. Green corridor. Source: UPC Team, 2015.

At the same time, it is important to think about green structures not only as a tool to improve the ecological situation but also as an element that integrates into the city. In other words, when developing big green patterns we cannot disregard their impact on the adjacent urban fabric and citizens' daily life. Nevertheless, generally, as soon as green corridors are designed at a regional or metropolitan scale, we encounter the lack of their integration into the local context, which may convert them into urban boundaries instead of elements that provide continuity and connectivity. This urban fabric fragmentation may cause issues in different socio-economic, ecological, structural and functional urban aspects. Working at a multi-scale dimension, switching from metropolitan to local aspects and improving connections between urban patterns are strategies which may revive currently abandoned areas and lead to ecologically efficient and sustainable development and increased living standards.

In the case of the Zhabei district, the track bed, which crosses the city from the east to the west, is a clear example of a structural lineal element that organizes big urban patterns but does not interact with them at the local scale. Analysing the Zhabei district and intervention area, the issue of morphological, social and functional segregation stands out. The railway that connects cities in the east–west direction restricts the development of Shanghai's central area in the north–south aspect. According to the State Council, it is necessary to encourage the efficient and intensive utilization of railroad land, develop above- and under-ground space through railroad land, incorporate certain aspects of other programs and grant different layers of land use rights through planning permits. In other words, it is necessary to integrate a currently useless, in civic terms, railway area into the urban fabric that will connect the historical downtown situated in the south, with residential areas in the north and create a new urban centre that will function as a whole with existing centralities.

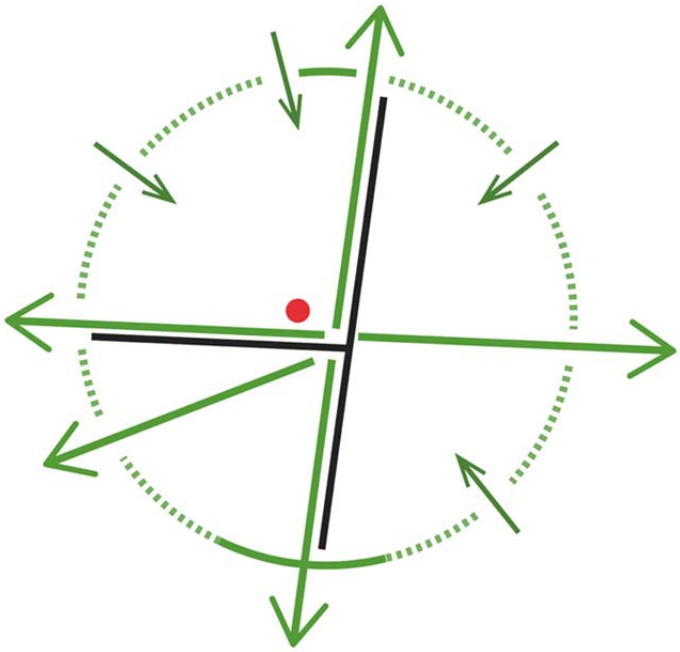

Figure 4. Metropolitan strategies (scheme). Source: UPC Team, 2015.

System of Urban Centralities

The urban prototype that we attempt to achieve is not exclusively a sustainable and ecological city, but also a polycentric and networked model that works as a unified system, in which each area has its own identity and responds to the specific demand of the place.

Nevertheless, in the case of Shanghai, we encounter a problem of disconnection between urban centres that causes mobility and accessibility issues and does not allow integration of urban elements into the terrain. During the metropolitan analysis, we managed to establish certain types of centralities within Shanghai's inner ring road (the location of the intervention area). Our criteria were first based on the scale and, afterwards, on functional components of observed areas. Depending on the impact that one centrality or another has, we can distinguish metropolitan (Pudong, Shanghai Railway Station) and local centres (market next to Baoshan Station). By contrast, when we are dealing with their functionality we can detect consolidated areas (Pudong financial district or historical downtown) and ineffectual sectors (Shanghai World Expo Exhibition and Convention Centre or Hongkou Football Stadium) which have the capacity to be converted into central areas but, due to their isolated location, do not take advantage of their potential.

As a solution for the discontinuous location of central areas, we propose to connect them via road system. We consider that these connectors should have a particular dimension and length to help establish a certain distance between central areas, converting them into attraction poles. In this case, it is possible to generate strain between two previously separated spots and strengthen their value as central areas. Thus, creating a strain between two central areas generates social and economic flows

between them that convert a simple road link into a lively street. In other words, the street, aside from connecting two central areas, acquires characteristics and functions of lineal centrality. Furthermore, the similar dimension and functionality of these road connectors may convert them into an urban model for Shanghai. This may serve as a reference measurement for the entire city, such as Cerda's block in Barcelona.

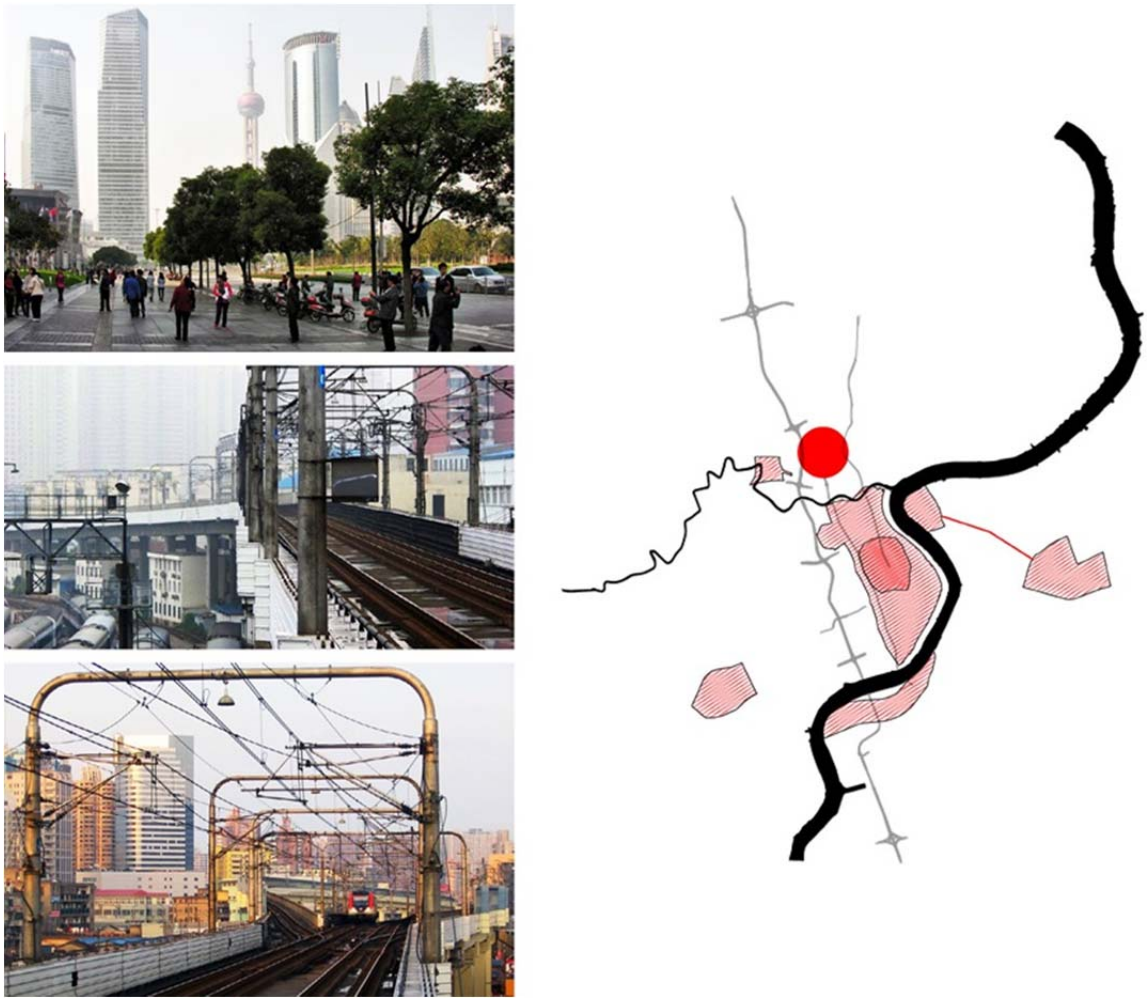

Figure 5. New centrality (scheme). Source: UPC Team, 2015.

Therefore, in order to integrate the intervention areas into the metropolitan scheme (Master Plan 2020–2040) and at the same time respond to the local demand, we propose to:

- Work at different scales.
- Create a multifunctional green structure.
- Improve and create transversal links in order to connect the northern and southern parts of the city.
- Promote and connect urban central areas.

In other words, the task is not only to create a new aesthetically attractive central area, but also to generate an urban transformation of the whole Zhabei district. This

transformation would convert it into an intermediate point from the Pudong area in the west to the Shanghai Railway Station in the east, and from the historical centre in the south to residential areas in the north. Thus, we are convinced that a well-designed and conceived proposal, besides integrating an overall sustainably oriented metropolitan program, will also strengthen and generate central areas, improve the ecological situation and increase living standards within the city.

4. Project proposal within the city structure

At an urban scale, we encounter an uncrossable barrier generated by the extensive and wide railway tracks that create a clear horizontal and vertical boundary and break visual and physical continuity, preventing permeability between the northern and southern parts of Shanghai central city. Due to this segregation, the possibility of connecting, unifying and mixing the socio-economic and cultural variety of the area is discouraged at both ends.

Due to this negative impact of the railway structure on the adjacent urban fabric and because of its huge dimensions and strategic location within the city, we do not consider the intervention area a problematic zone. Indeed, it becomes a challenge and opportunity to implement a project that stitches and twists two of Shanghai's areas (north and south) together in a subtle and elegant way. In this way, we are able to design a multifunctional green central area, in which previously segregated areas become a part of a single plot that not only maintains socio-economic and culture diversity but also adds new ecological values, organizes urban activities and offers a place for citizens.

4.1 Continuity, permeability and transversality as key elements of the urban connectivity

The railway infrastructure supplies the intervention area with a continuous longitudinal axis that runs from east to west passing through the Baoshan and Shanghai Railway Stations. Nevertheless, this connection focuses mostly on metropolitan mobility and does not provide a sufficient number of urban and local links. This lack of transversal continuity is an important point that we should take into account and consider as an opportunity to increase connectivity and mobility of the area not only from the metropolitan perspective but also from the pedestrian point of view. On the other hand, a mandatory aspect such as transversal connections, which help generate a good city form at both metropolitan and local levels, does not appear as a significant element. Due to the large barrier formed by the railway infrastructure, the existing transversal connections are arranged for a faster, longer distance travel and are not considered for short pedestrianized journeys. Observing this phenomenon, we assume the need to work on local links in order to connect urban patterns at the smaller scale giving priority to pedestrian flows. Thus, by performing a multi-scale intervention, we are attempting to connect urban patterns on a local, urban and metropolitan scale. Following this, a conceptual idea that establishes a network of urban connections, considers and respects the importance of the three main road axes (North South Elevated Road, Xizang North Road and Baoshan Road) and generates a pedestrianized transversal connection in the north–south direction, complementing the existing east–west longitudinal continuity, is proposed. These strategies may help resolve and

improve circulation and communication between fabrics, which is one of the main objectives of the project.
The lack of permeability between urban patterns is another important aspect that was detected during the metropolitan analysis. Because of the railway infrastructure, which represents a horizontal wall that blocks the north–south relationship, a huge typological variety of dispersed plots and urban blocks is generated. Therefore, we consider it necessary to combine all this plurality of forms and volumes with the clear and fundamental idea of implementing porosity at different levels—underground, street and aboveground—in order to weave urban fabrics.

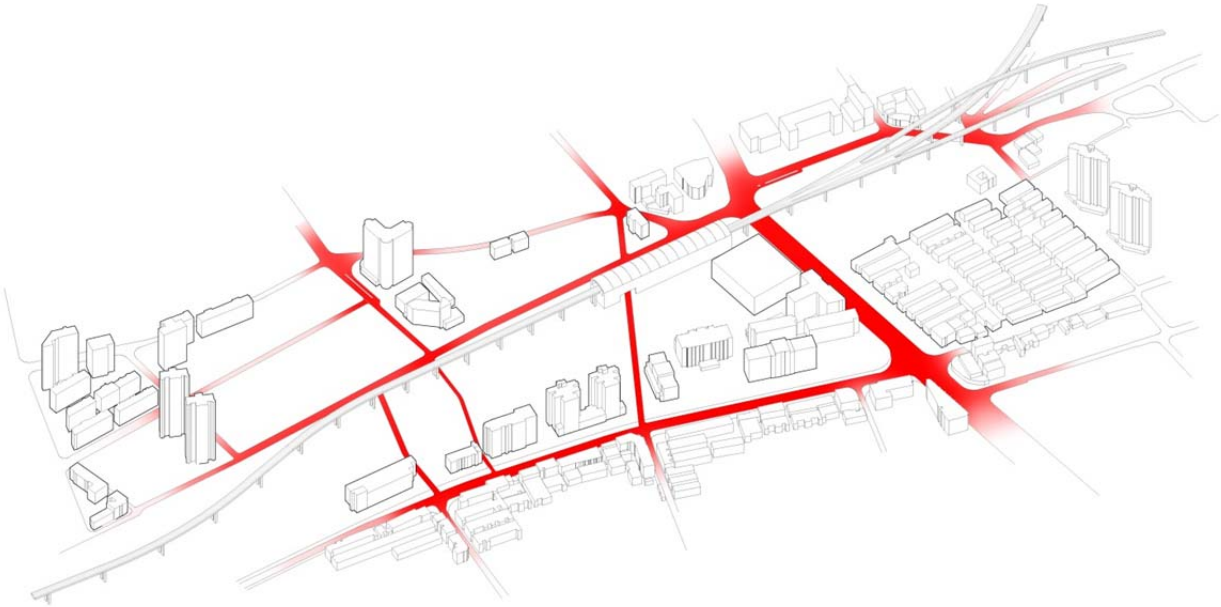

Figure 6. New permeability in the eastern area of the proposal.
Source: UPC Team, 2015.

4.2 An urban model

Taking into account the existing centralities of both ends, Shanghai Railway Station in the west and the market next to Baoshan Station in the east, as well as other nearby central points (such as the historical downtown, riverbanks, Pudong area, etc.), the whole intervention area is already expected to be converted into a major central area. It is equipped with a huge variety of activities and services that may generate a significant improvement over the whole Zhabei district and its adjacent areas. Nevertheless, we are convinced that we should be respectful to the culture and tradition and be aware of the essence of Zhabei, maintaining the mixture of its urban patterns and dealing with them in a concise and correct way. Through the project buildings we propose, we aim to contribute to the creation of new activities and services, which are currently lacking in the intervention area, betting on a new program of huge diversity of functions but at the same time trying to respect and preserve aspects that already work and form a part of its cultural core. Thus, geometrically, the

volumetric and typological variety proposed in our project conforms to the actual morphology of Zhabei and possesses a huge urban potential that is able to maintain the existing urban character but, at the same time, create a new identity.

4.3 Green structure

We would like to emphasise the main element of the project: the green structure aimed at organizing the city's areas both at the metropolitan and local levels, functioning as a self-purifying lung of Zhabei district that will work as a whole with the metropolitan green system. In order to connect these two green areas developed, we propose to establish a group of connectors, so-called green capillaries that will integrate our project into the Suzhou Creek green and blue corridor, which is designed as part of a regional green continuum. Therefore, we attempt to generate a multi-scale green and blue continuity that may form a new ecological urban network that will give rise to an intense and active urban life.

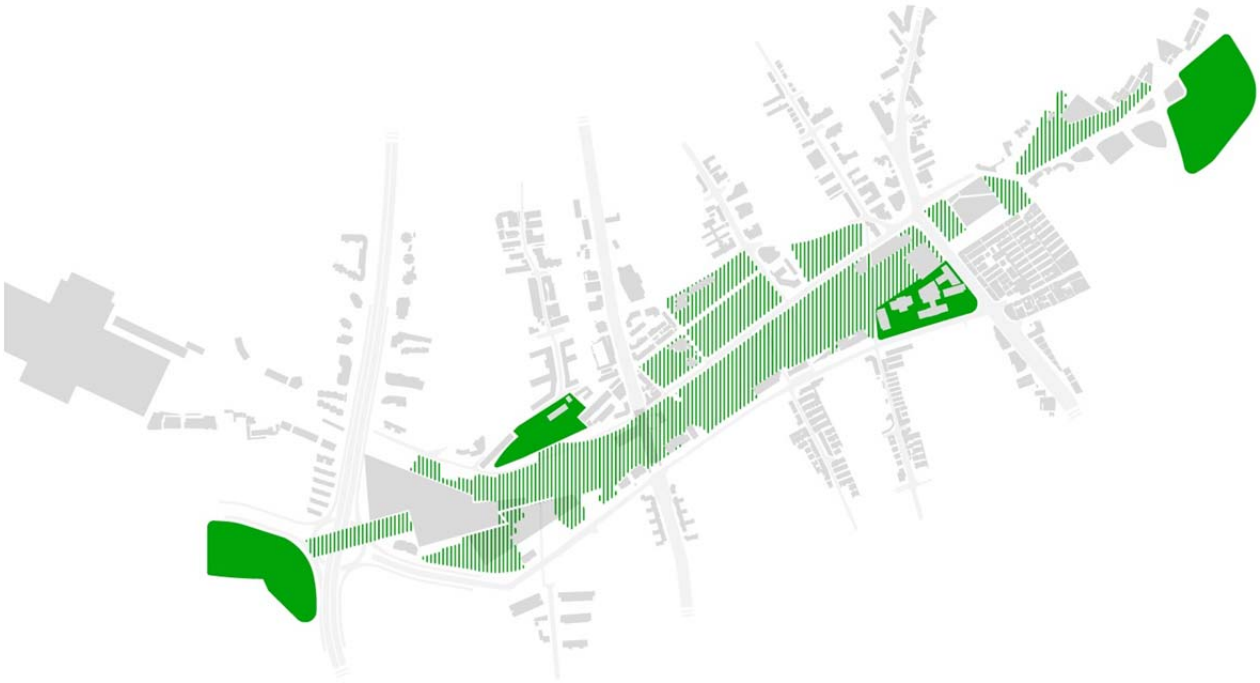

Figure 7. Diagram of green connections (plain green: existing green areas / striped green: new green areas). Source: UPC Team, 2015.

5. Design ideas

The design phase begins with a series of needs and requirements, which the project must meet, extracted from the text provided by The Shanghai Zhabei District Planning and Land Authority. In the same way, all the decisions made were based on the different aspects, which we consider define a contemporary metropolis model.

Below, we reveal some points that ascribe identity to our project and make it stand out: creation of a new metropolitan central area and design of an equipped park with an intense, permeable and multifunctional urban zipper that works as a whole with the environment.

5.1. Demands

We are aware of the difficulties that appear working in an area such as Zhabei, which is constantly changing. Taking into account the responsibilities that we have as urban planners, we have established a number of minimum requirements that our project must achieve:

- Get to know the intervention area and its surroundings in depth, both its historical evolution and its situation today, in order to elaborate a proposal, which is able to tackle future challenges with the highest guarantees.
- Discover the potential of working in a zone mostly occupied by railways. Not only revitalizing the place, creating a new relation with its environment, but also preserving its current uses (administration and train maintenance).
- Work at different levels, at the city level and below it, to set up an urban proposal developed in 3D.
- Create a network of connections encompassing different scales, from metropolitan infrastructure to pedestrian movements.
- Encourage north–south movements (urban permeability). Almost an impossible task nowadays because of the barrier generated by the railways.
- Promote programmatic diversity in the area.
- Study what kind of structure will be used to cover the tracks in detail.

5.2. Answers and general objectives

Each part of the project is based on the essential aspects that define the paradigm of a contemporary metropolis:

- NETWORK CITY. Interconnected through transportation infrastructure and new technologies.
- SUSTAINABLE CITY. Ecologically, economically and socially.
- INCLUSIVE CITY. Designed for all kinds of users, taking care of the social point of view and accessibility (without architectural barriers).
- SMART CITY. Able to apply innovative solutions in the management of its services and resources in order to improve the quality of life of all citizens.

Thus, according to these urban models, we present our proposal with the firm intention of transforming the massive crack in the area into:

- A new centrality for the metropolis.
- An equipped park with intense and varied use.
- An urban zipper with high permeability with the environment.

<u>A new centrality</u>

As a new centrality, we propose to convert Zhabei into a first-order component inside the polycentric system of Shanghai. On the one hand, it will be articulated with other centres through three metropolitan avenues (North South Elevated Road, Xizang North Road and Baoshan Road) reaching the heart of the historical centre and the river, close to the enclosure for the international exhibition in 2010. On the other hand, it will establish a visual dialogue with Pudong (financial center), virtually expanding the centrality axis generated by Century Avenue.

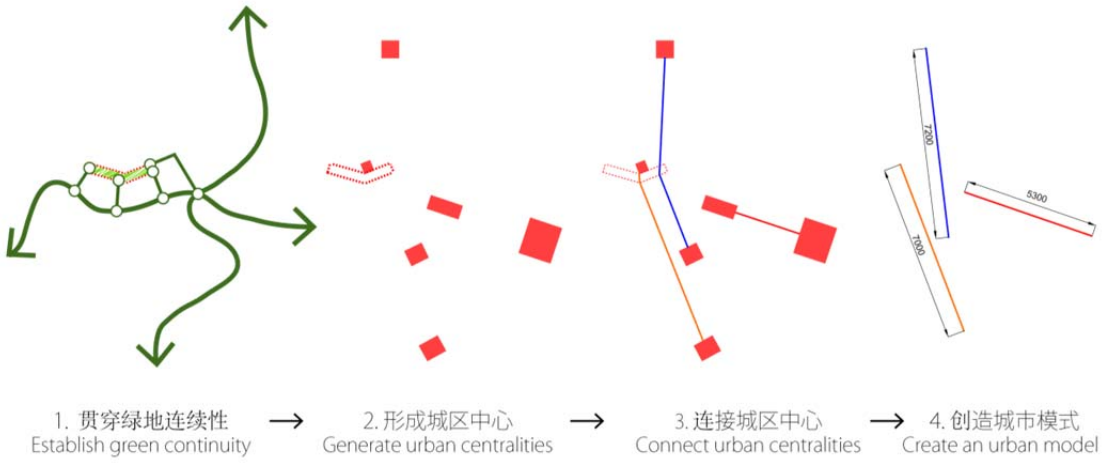

Figure 8. The proposal as a connector and new centrality within centralities.
Source: UPC Team, 2015.

An equipped park

In the form of a park, the area will become a new space designed for the enjoyment of all citizens, a place where they can both walk or relax, followed by a huge program for leisure, sports and culture. This lineal park would extend over a slab covering the tracks between the North South Elevated Road and the station of Baoshan.

Figure 9. General view of the proposed park from the downtown area.
Source: UPC Team, 2015.

We propose a progressive undergrounding of the railways on the east side, beyond Xizang North Rd, without compromising the groundwater level. Consequently, the

platform would be located at the same level in the neighbourhoods next to the metro station.
At a metropolitan level, the park is linked to the green axis that follows Suzhou Creek, connecting with Buyencheng Park in the west and spreading throughout its total extension. It is one of the three main axes inside the green system proposed in the current Shanghai Metropolitan Plan. We propose to continue the green system up to Suzhou Creek. The current regeneration of the river will complete and intensify the ecological system in Shanghai.

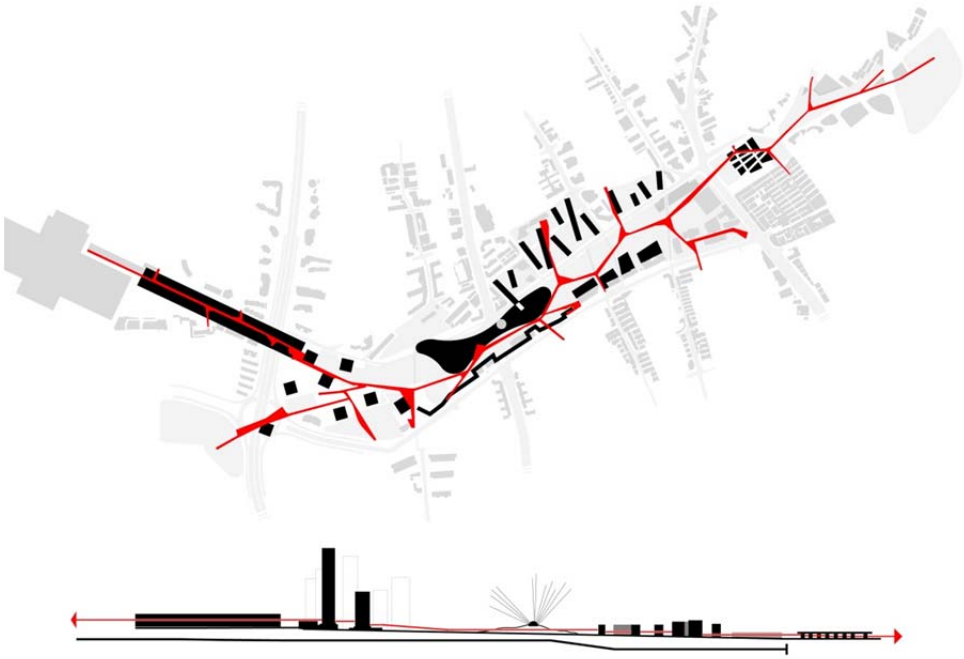

Figure 10. Pedestrian paths connecting the whole intervention area. Source: UPC Team, 2015.

An urban zipper
As an urban zipper, the project will try to sew and unite the surrounding urban fabric, which is, nowadays, completely isolated. This suture involves the correct design of the proposed edges and the continuity of the transversal pedestrian paths.
On the south rim, the traffic on Tianmu East Road would be pacified, becoming part of the linear park. This street would be accompanied by businesses, located under the covering structure and also in the lower levels of the new urban fabric generated in front of the park.
On the northern edge, the reorganization of the original district would bring the creation of a technological campus and some housing. This new urban fabric would not only act as a filter between the park and the city but would also integrate numerous pre-existing structures. In addition, we propose a new structural street parallel to the park, crossing this area.
Overall, we are creating a local-scale mesh, not only connecting north and south but also encouraging longitudinal movements.

5.3. Concept and design elements

Facing the growing multiplicity of uses and situations that must be attended to, the urban park is leaving behind its classical conception. Historically it has been linked to an idea of a bucolic garden for contemplation, rest and sauntering. Today, this idea creates more and more controversy due to the new demands that it must satisfy. When we started to design the park, we considered the benefits of hybrid spaces, which are able to satisfy various requirements. We are talking about infrastructure and city, infrastructure and landscape, architecture and park. These complex structures, born to integrate specific activities, are also defined by their possible use as a free space, their articulation with the city and their landscape component.

Conceptually, the project involves double logic. Lengthwise, it is understood as a combination of five types of programs or programmatic elements. Cross-sectionally, it is structured into six movement vectors, three of which work at a metropolitan level and three which are related to the surrounding neighbourhoods.

<u>Movement vectors [3+3]</u>

The three axes identified in the Metropolitan Scale Analysis, being the ones that connect the intervention area with the rest of the city, play a key role in our proposal. In relation to each axis and both the central and Baoshan stations, profiting from the gradient generated by the covering structure, we arrange parking lots. In addition, we design a third station conceived as a HUB between lines 3, 4 and 8 as well as the Xizang North Road. Overall, our proposal is firmly linked to Shanghai's infrastructure, opening up a completely new range of possible connections in terms of mobility and giving the existing shortfall of parking areas an active response.

Figure 11. Existing metropolitan axis. Source: UPC Team, 2015.

On a local scale, transversely crossing the space occupied by the railways, we extend the existing roads to configure three pedestrian axes stitching both sides.

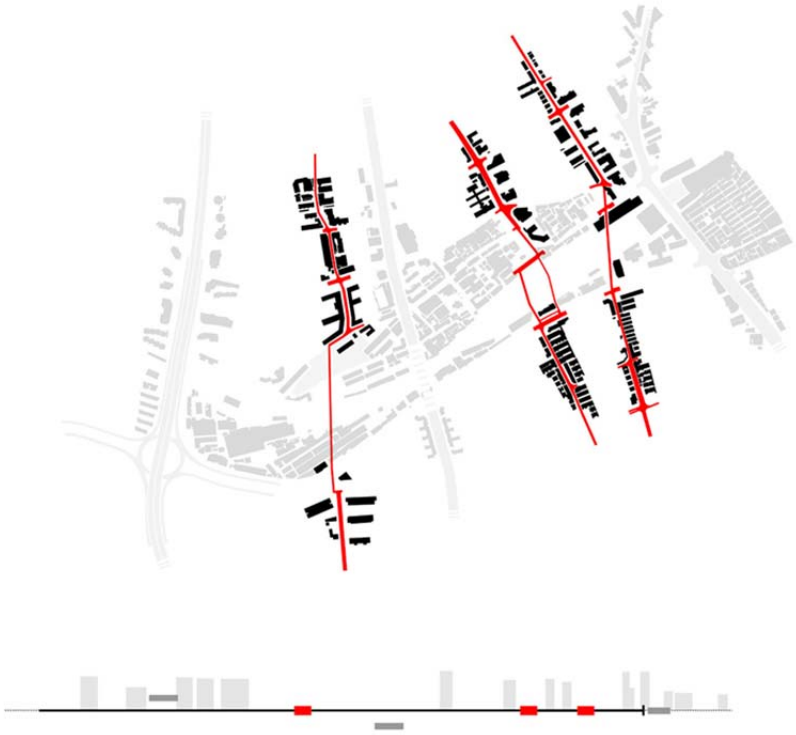

Figure 12. Generated pedestrian axis. Source: UPC Team, 2015.

Programmatic elements [5]

Related to the principal uses, the users could find five elements of design in the park. The links between them will form some kind of continuous and amorphous mesh. The five elements (like the five traditional elements in Chinese culture) are:

- NATURE. Understood as green structure, gives identity to the proposal and unifies the project. In addition, it allows an easier connection with the park system scheduled in the metropolitan plan.
- TRANSPORT. Shanghai Railway Station, Baoshan Station and the new HUB station over Xizang North Road would act as nodes of attraction for metropolitan flows. The planned parking lots would reinforce the intermodal function and would fulfil the needs of the new functional program.
- COMMERCE. Based on the attraction generated by the two polarities located at the ends of the park (one is the renovation of an existing market and the other is built from scratch) and the commercial axis that connects them.
- LEISURE + SPORT. Placed following a systematic and equidistant way one would find theatres, bars, restaurants, clubs, sports centres, etc.
- CULTURE + TECHNOLOGY. It adopts a similar logic. In this case, one would find a technological campus, some outdoor stages, a convention centre, etc.

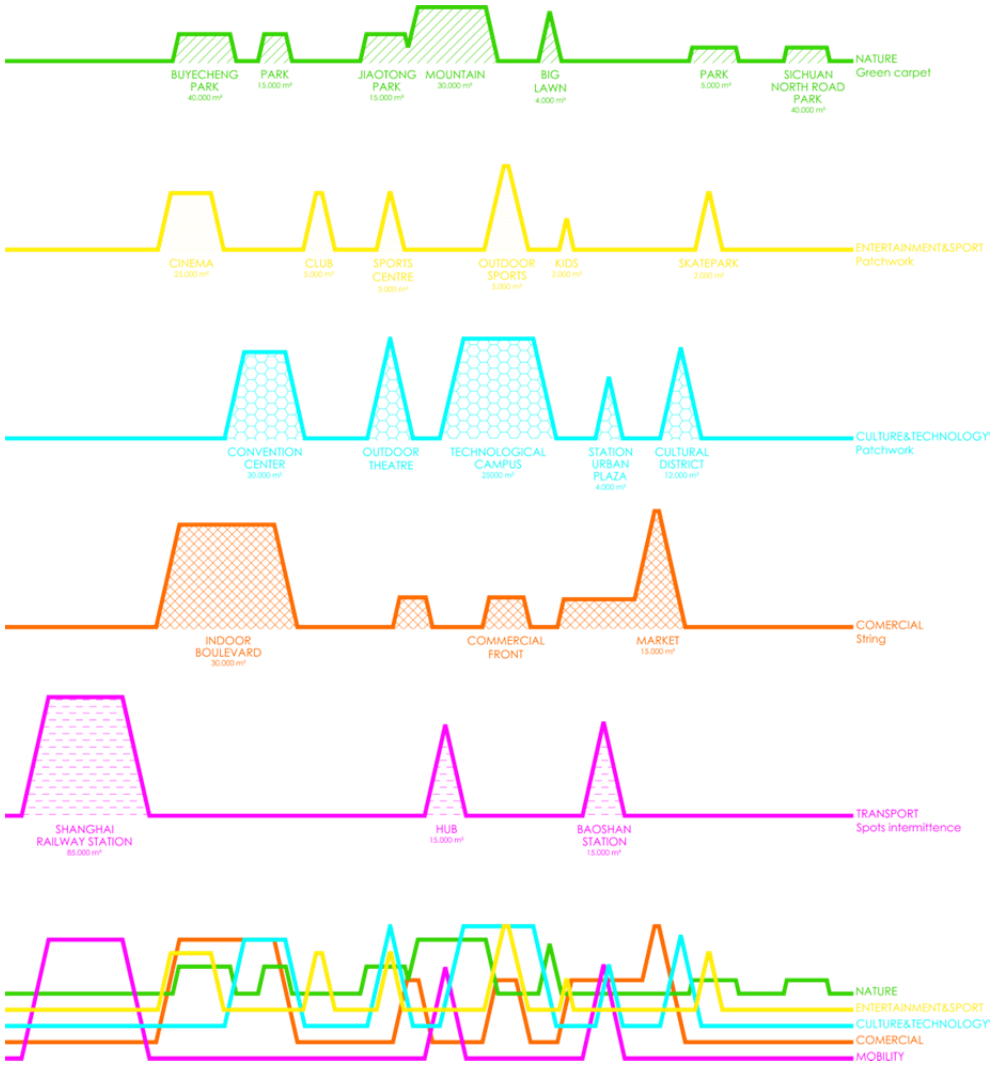

Figure 13. Diagram of the hybridization of uses and its intensity according the five traditional elements (green: nature; yellow: entertainment and sport; blue: culture and technology; orange: commercial; purple: transport). Source: UPC Team, 2015.

5.4. Projects units

The project tries to provide a strong urban identity in Zhabei. One of the components of this identity is based on the diversity and mixture of the proposal, again reinforcing the hybrid character of the whole.

Subordinated to the design patterns explained in the previous section, we identify seven project units. These are unique elements inside the project. They are parts of a whole that respond to and articulate a superior logic.

In terms of economic feasibility, linked to the phases of development, each unit has been thought of as valuing the right balance between public and private surfaces. As a result, private investors may face the cost of public spaces next to each of the units. From west to east:

Promenade buildings

The correct relation between our project and the Shanghai Railway Station is essential. Due to the strong attraction and the high number of passengers which will be generated, we need to create a solid link between the two sides. For this reason, we propose a large building that passes over the North South Elevated Road and connects the station with the downtown area.

Conceived as a horizontal skyscraper, similar to *L'Illa Diagonal* in Barcelona, it will contain, among other programs, a shopping boulevard, cinemas and a convention centre. The complexity of the downtown with its direct connection with the Shanghai Railway Station ensures that we are proposing a new centrality in the Shanghai area.

Figure 14. Axonometric perspective of the longitudinal promenade to the Shanghai Railway Station through proposed buildings. Source: UPC Team, 2015.

Downtown

Downtown emerges next to the intersection between the North South Elevated Road and Haining. This area will have the highest level of activity and programmatic density of the project. It is a superstructure conceived as a superposition of platforms at different levels, which allows us to make a smooth transition between the park level and the city level. On this podium, occupied by public programs, eight towers combining offices, hotels and residences will appear.

The main feature of these towers is their associative condition. They are conceived as a group, part of a bigger unit, not as individual elements.

Figure 15. General view of the downtown area. Source: UPC Team, 2015.

Intermodal station and the mountain

In the central part of the intervention area, we plan an intermodal station connecting underground lines 3, 4 and 8 with both public and private transport coming from Xizang North Road. In addition, entrances at the park and city levels support the relation between infrastructure and pedestrians.

An artificial mountain covers the entire infrastructure. If the entire project has its climax in the downtown towers, the linear park has its own on this peak. In terms of execution, this could be constructed from the material produced by excavations and demolished buildings, covering the latest layers with natural soil. This solution was used in Germany to reuse the debris of the buildings bombed during the World War II.

The hillside oriented to the park will have an area of opportunity on its west side. Like a Greek theatre, it will have a series of grandstands able to accommodate a large number

of people. Thus, the cultural mountain, the magic mountain or the mountain as a spiritual symbol, will become one of the icons of the park, a stage for all kinds of shows and events and a privileged point of view from which to observe the park and its surroundings.

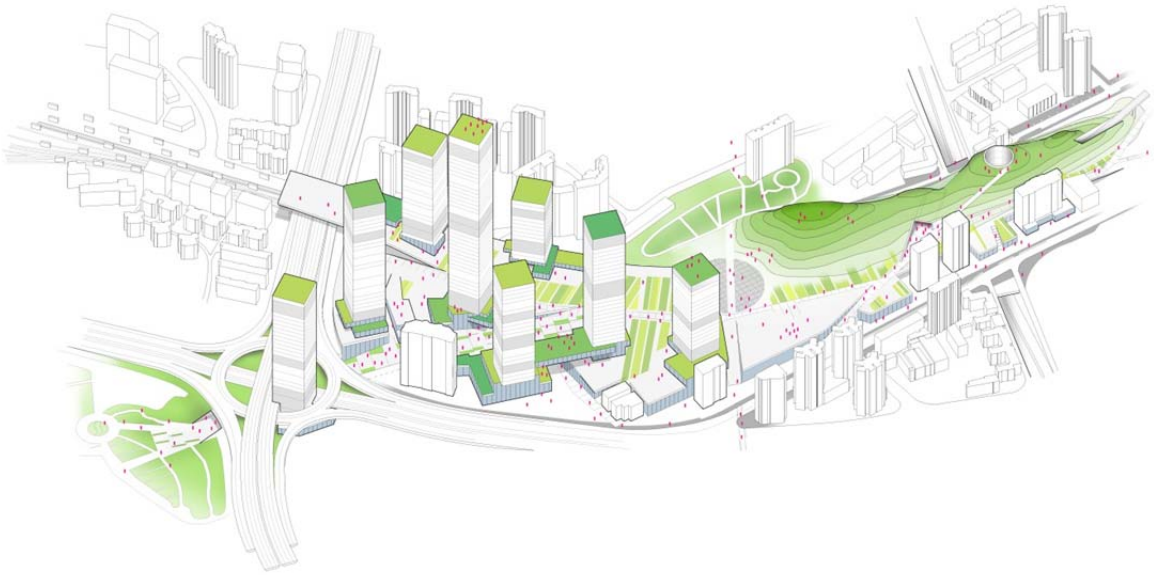

Figure 16. Axonometric perspective of the green carpet in the downtown area and the mountain. Source: UPC Team, 2015.

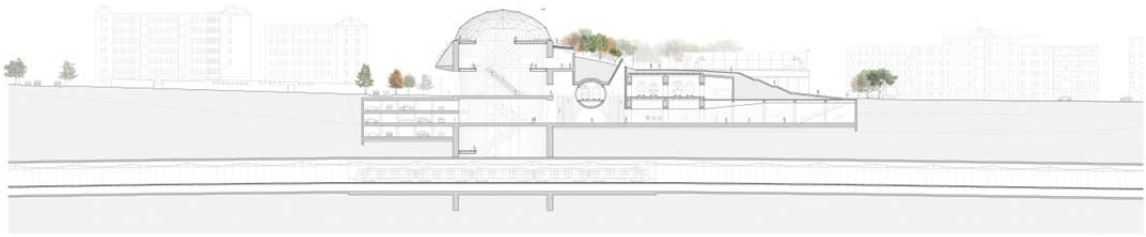

Figure 17. Cross section of the intermodal station under the mountain. Source: UPC Team, 2015.

Commercial front

As we have said before, the partial pedestrianisation of Tianmu Road, moving some of its current traffic to Haining Road, will encourage the creation of a commercial street on the southern edge of the park. It would be an irregular front, which would combine different shops and pre-existing buildings with ramps, stairs and elevators connected to the park level.

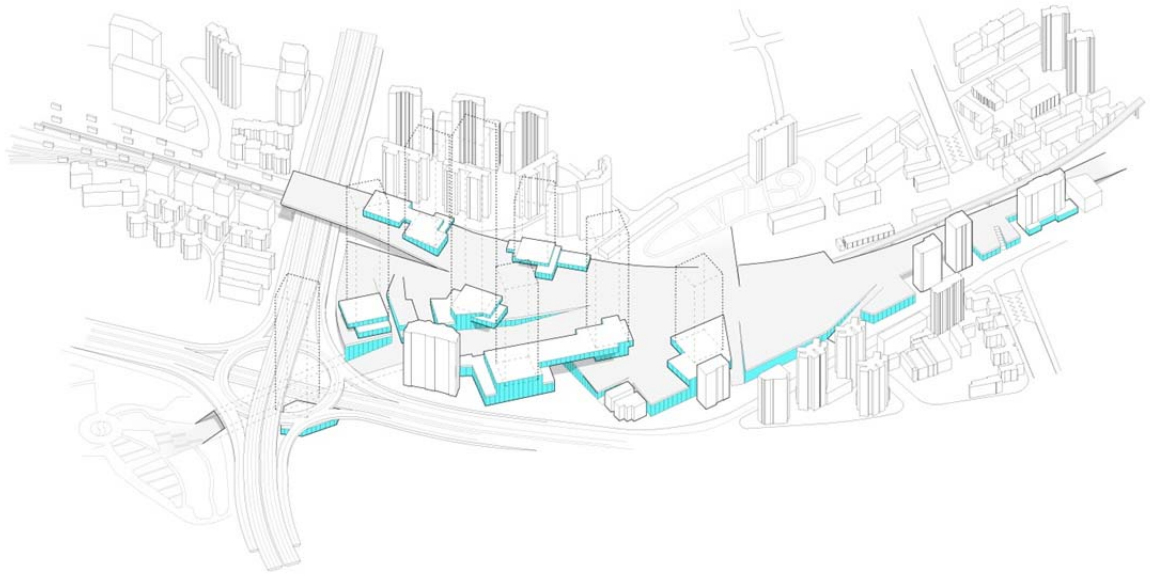

Figure 18. Axonometric perspective of the commercial front. Source: UPC Team, 2015.

Technological campus

In the northeast side, a new configuration of the urban fabric offers the opportunity to redefine the park limits. We have defined a linear building system that reinforces the continuity of the new pedestrian axes by the generation of continuous fronts. The new blocks contain a technological campus (Research + Development + Innovation, known as R+D+I) combined with residential units for students and those residents who need to be relocated.

Closed blocks

On the southeast part, we have designed a closed block system absorbing some of the pre-existing buildings and generating a new facade for the park.

Market

Along Baoshan Street, next to the metro station, the renovation of the old market creates a new meeting point in the area. We have considered the preservation of the traditional urban fabric (lilongs) as a possibility. In this case, the rehabilitation of the lilongs located in the southern part of the market and the inclusion of a cultural program specially designed for local users would increase urban activity in the area. In addition, the undergrounding of the railways beyond Xizang North Rd and the placement of the covering structure at a city level would contribute to encouraging movement between the market, our park and the Railway Museum surroundings.

Figure 19. Axonometric perspective of the technological campus, the closed blocks and the market. Source: UPC Team, 2015.

6. Conclusion

Thanks to the proposal of the UPC Team, several new features which are harmonious, inclusive, friendly, smart, accessible, and sustainable have been introduced in the urban planning of this central area in Shanghai. These new concepts, which define a change of paradigm in the ideation of Asian cities, helped to project not only a simple park, but also a structuring park in Shanghai. All the items described in this article transform an existing urban border into an urban zipper to contribute to the improvement of life. According to this attitude, the motto that has followed the UPC Team while developing the project has been the one used during the Shanghai International Exhibition 2010, "A better city for a better life." The UPC Team decided to recover the slogan because the equipped park tries to offer a fully new lifestyle that incorporates a vibrant public life, fostering liveability and human cohesion on a local and metropolitan scale. The intervention seeks to regenerate the area thanks to its highly respectful and accurate design, linked to the aims of the Master Plan 2020–2040. Indeed, this innovative spatial design expects to bring new ways of human development within the whole city of Shanghai.