

Emerging Identity:  
Envisioning Eco-cultural Infrastructure in Post Industrial Shenyang, China

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**Abstract**

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De-industrialization is becoming a new challenge for many cities globally. Tiexi District, as one of the oldest and the most significant heavy-industrial areas in China, has experienced the deindustrialization process since 2000. Substantial factories and workplaces have relocated in rural areas, leaving a large amount of vacant land for redevelopment in the inner-city. Today, over a decade after regeneration, the district has become a diverse urban neighborhood with multiple functions. During this time, the demographics and cultural identities have also been shifting dramatically, calling for another series of renewal processes in the near future.

Within this context, this thesis explores the central concept of the district's emerging identity, and suggests planning and design strategies that approach a more sustainable and creative urban renewal process. Taking Tiexi District as a representative example, this thesis illustrates how an "identity-strategy-renewal" methodology works, and proposes design strategies to plan for future development of the district.

# Acknowledgments

*This thesis is completed with passion and attachment to the city I grew up, and countless stories and memories that inspired me greatly.*

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*Immense thanks to my parents for always supporting me on my research and study. It is also their vision and commitment that keeps encouraging me to explore this topic. Especially dad, who went through the success and decline of traditional industries, has offered his unique perspectives on urban regeneration process in the future.*

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# 01 Introduction

## 1.1 Starting Point

Growing up in the biggest heavy-industrial city in China, I witnessed the tremendous social and economic change caused by the de-industrialization process during the last decade. My father is a passionate engineer who works for one of the oldest factories in the city. Our family used to live in an industrial campus together with hundreds of young engineers and workers. Before the campus was relocated, it carried a lot of unique childhood memories of mine back to the old days. Even now, I can still remember the central courtyard, where we kids used to play and laugh under the magnolia blossoms in Spring; eat ice cream together in Summer; watch leaves falling in Autumn; and have snowball fights in Winter..... Although it might be ordinary to others, there are always some special places in people's minds that illustrate the concept of "place attachment". This is an essential but also often ignored concept in this rapidly changing contemporary society. The lifestyle and demands of people are changing day by day, forcing the urban fabric to be restructured as well. Under this circumstance, with the constant renewal going on in the urban area, the inherent place attachment ended except in city memory. Just like my own experience with the industrial past of my hometown, I knew that there were generations of engineers just like my father, who had devoted themselves to the development of manufacturing and heavy-industries in the early years of New China. Although with the inevitable de-industrialization process the factories have gone, the central spirit of those engineers and workers should be preserved as the root of this city, taking a role in educating and inspiring the next generations.

## 1.2 Why Do Identities Matter?

Having been through the de-industrialization, many cities are approaching a more sustainable and smarter way of city development. Among many theories, “the Creative City” has been referred to a lot. Many believe that every human being is creative and the rise of creativity is the economic engine for further development. Then it becomes a question of stimulating and collecting the creativity of people in the city. From ancient times of all ages, we can see the creativity that lies in indigenous cultures. New economies start from the establishment of cultural capital, which is understood as an element of the maximum expression of place identity. In other words, the emerging identity which roots in the indigenous culture and is reformed by changing social and economic contexts, is the key to exploring a better way of city development.

## 1.3 Methodology

**Renewal 2017+** ←----- **Renewal 2000+**

Suggested planning and design strategies for future renewal process

Researching on the urban renewal process in Tiexi, Shenyang, and understanding it as the essential foundation for future study.

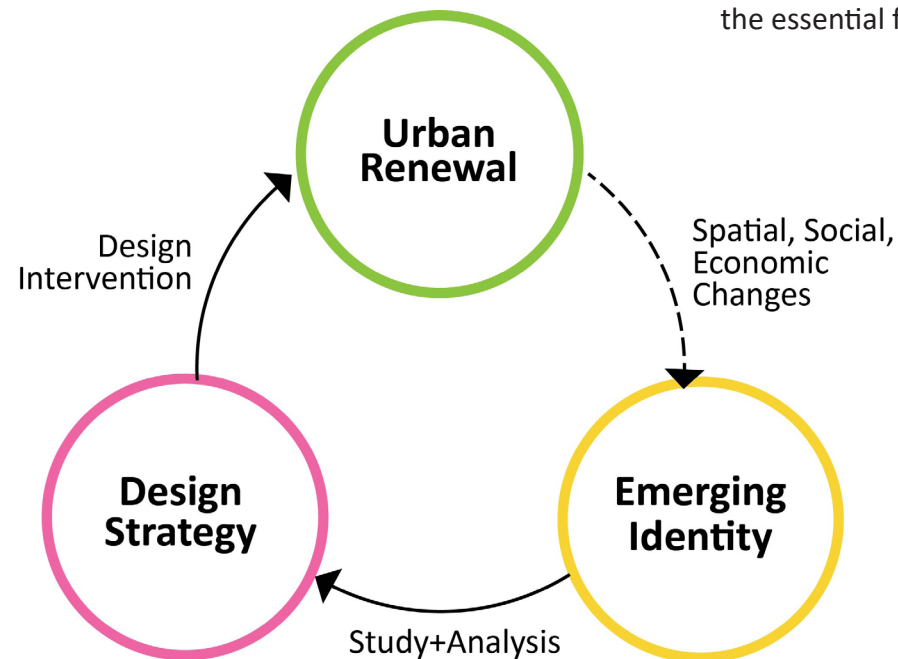


Figure 1.1: "Identity-strategy-renewal" methodology diagram by Shuyi Gao

## 1.3 Methodology

In this thesis, literature review, public space study, in-depth interview and design exploration have been used as the primary methodologies.

The research was conducted in the following steps.

- (1) Reviewing literature and precedents on related topics, setting up the framework and knowledge foundation for further study;
- (2) Tracing the development of former industrial sites, and research on the zoning, public space patterns and utilization of the renewal area;
- (3) Conducting in-depth interviews with multiple groups of citizens in the study area, in order to explore their inherent place attachment and perspectives on emerging identity;
- (4) Based on the above research process, clarifying the problem statement and future goals for the design exploration;
- (5) Seeking spatial strategies to approach established goals; and
- (6) Reflecting on the research and design process and providing suggestions for a better dynamic urban renewal process.



## 02 Literature Review and Case Studies

## 2.1 The Nature of Urban Identity

In recent years, there has been increasing research about place-related identity within the environmental psychology field (Anton & Lawrence, 2014; Lewicka, 2011). Most of this research has been conducted at the individual level, with terms such as “place identity” and “place attachment” typical examples. Looking at identity at the local or even regional level can be also essential to gain a better understanding of local culture, environment, and social patterns. The term to describe this concept would be *urban identity*. (Lalli, 1992)

Conceptually, urban identity may be described (1) as a feature of the city based on a collective attribution and (2) as the self-identification of the person with the city (Belanche, Casalo, Flavian, 2017). In this thesis, the central concept of emerging identity refers to the former definition of urban identity, which is the shifting character of the city or a certain urban area. The aim of a literature review on this topic is to identify: (1) the specific factors of an urban area that will influence the formation of urban identity; (2) the consequences of urban identity; and (3) the relationship between urban identity and urban renewal.

In a spatial sense, a person may be attached to very specific places; nevertheless, at high geographical levels such as cities, social representation (shared meanings) or social belonging are critical to place identity formation (Hay, 1998). The term *social representation* was first brought up by Serge Moscovici in 1961, which is now understood as "system of values, ideas and practices with a twofold function; first, to establish an order which will enable individuals to orient themselves in their material and social world and to master it; and secondly to enable communication to take place among the members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously

the various aspects of their world and their individual and group history" (Moscovici, 1973). So far, there are five categories of social representation being considered as the influential factors of urban identity: cultural factors, historical factors, political factors, environmental factors, and social factors (Belanche, Casalo, Flavian, 2017). These five categories provide the framework for the study of emerging urban identity of the Tiexi District in this thesis.

Although this thesis is referring to the local level of identity, place attachment and place identity are also important. Place identity can be defined as "a person describes himself or herself in terms of belonging to a specific place due to interaction processes with places and people" (Tajfel, 1978), which refers to the sense of belonging that people share in a particular place, or a larger urban area, which makes them tend to act as the "norm" of this place. Place attachment is widely considered as the medium to increase social cohesion and improve quality of life in neighborhoods (Brown et al., 2003), which could also provide clues for local level research. Place attachment is understood as a positive affective relationship between a person and a place, and it often translates into being proud of one's residential area and its appearance (Lewicka, 2012). Based on the above, the individual level of place identification involves emotional attachment and behavior change, which is also shared at the local level. What's more, the essential factor in the central topic of urban renewal in this thesis – substantial immigration and gentrification conditions in the city of Shenyang – makes the self-identification perspective of urban identity also an important issue to consider. Various backgrounds, education and values of people contributes to the uniqueness of the urban identity of Shenyang.

The exact relationship between urban identity and the process of urban renewal is still unclear, while the literature review provides the essential support for this topic in this thesis. The process of urban renewal, which usually starts from a series of redevelopment projects, will first impact the place identity at the individual level – the reconstruction of place identity and place attachment in the city. Secondly, with the resulting social and economic changes, together with the spatial changes, there will be a shift on local lifestyle and behavior norm. Thirdly, with the increasing diversity of demographics, the local culture will be diversified as well, which indicates a change of urban identity. Expressed in another way, how will the shift of urban identity impact the ongoing urban renewal process in the future? This will be the central question in the design exploration.

## 2.2 Creative City

The concept of creative city was first brought up through the work of Peter Hall, and Charles Landry (Hall,1998;Landry, 2000; Florida,2002) and emerged as a new urban model with the European Union's "European City of Culture" or "European Capital of Culture" projects. (Sasaki, 2011) In Landry's theory, the concept evolved from a term referring to the inherent creativity of artists and writers, to the potential of creating new industries and job stability. Another definition refined by Masayuki Sasaki states that "the creative city as a city that cultivates new trends in arts and culture and promotes innovative and creative industries through the energetic creative activities of artists, creators and ordinary citizens, contains many diverse "creative milieus" and "innovative milieus", and has a regional, grass-roots capability to find solutions to social exclusion problems such as homeless people." (Sasaki, 2001).

In terms of development mode, Sasaki also proposes what been called "cultural mode of production model", which is a well-balanced system of cultural production and cultural consumption that takes advantage of accumulated cultural capital to produce products and services high in economic as well as cultural value in a system where consumption stimulates production. (Sasaki, 2007) In other words, the accumulated cultural resources can be a powerful tool to stimulate future development.

Since cultural capital is also considered as an element of the maximum expression of place identity (Hague and Jenkins, 2005, London), the key to urban regeneration comes back to the conception of urban identity. Research shows that most successful urban regeneration projects are those where there is a strong involvement of local preexisting identity and where recovery of the historic sense of place and belonging to the local community is expected. (Marichela, 2013)

Overall, the concept of Creative City emphasis on the power of creativity to particular economic activities. Every individual has the potential for being creative, even for the minorities and the “grass-roots”. Although industrial workers has not been mentioned in the previous development of this concept, the uniqueness and enthusiasm of the workers still motivates me to explore the potential bridge between the industrial past of the city and a sustainable future.

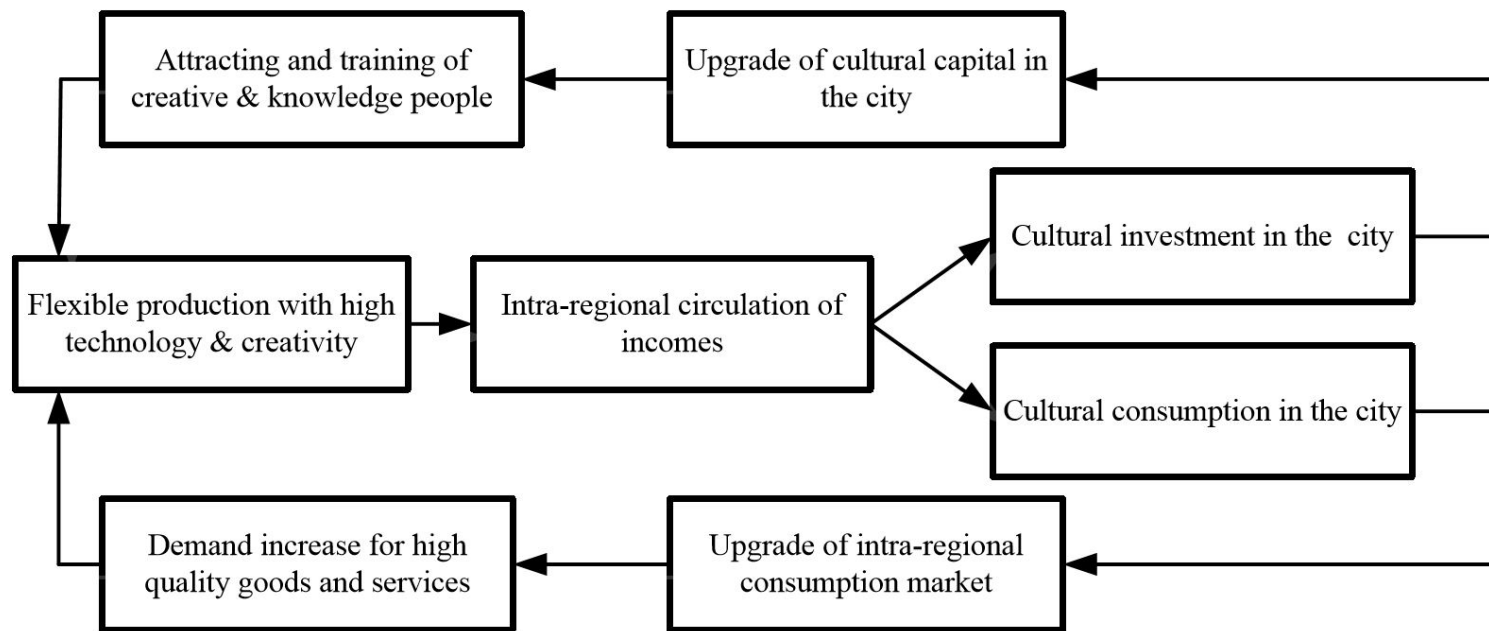


Figure 2.1: Cultural Mode of Production Model Accessed February 2011, Journal of Urban Culture Research, Original by Masayuki Sasaki.

## Case Study: Hafen City

HafenCity is located in the heart of Hamburg, Germany. As the largest on-going urban renewal project in Europe, HafenCity is changing the ugly and industrial image of Hamburg dramatically. The area was formerly used as a port, until the city of Hamburg decided to redevelop it referring to the conception of “Creative City”. Spending ten years on the planning process, the project was conducted by wide-ranging disciplines and groups of people. The masterplan of the project proposes a concept for an urban horizontal and vertical mix of uses and a flexible basic framework, which reflects on the system establishment, but also individual architectural projects. The masterplan aims to expand the city center by 40% over the next 25 years and to create a new central area with a strong port character.

Also as the former industrial district, the dynamic planning and renewal process of HafenCity could be considered as a precedent for urban renewal process in Shenyang. The clear vision and framework makes sure the renewal is being implemented in a smart way. In terms of approaching a creative city, the masterplan provides substantial job opportunities, which makes the area an actual attraction for talented people, and a powerful engine of the local economy.



Figure 2.2 : Construction of Hafen City  
Photo Credit – [www.mediaserver.hamburg.de](http://www.mediaserver.hamburg.de) / B. Kuhn

## 2.3 Deindustrialization and Urban Renewal

During the past two decades, employment in manufacturing has fallen dramatically in a lot of developed countries, particularly in the United States and Europe. This economic-based phenomenon of “de-industrialization” has also caused considerable impact on the spatial structure and social interactions within the city.

China, although still remaining in the process of rapid industrialization and urbanization, has also showed evidence of the de-industrialization process. Due to the imbalanced industrial development during the early years of the New China, previous heavy-industrial hubs are in urgent need of diversifying its industry chains. The city of Shenyang is a typical example. The critical issues caused by deindustrialization have mainly emerged in north-east of China, which used to provide the essential heavy-industrial productivity for the whole country. In recent years, the increasing focus on high-tech business and emerging green industries has forced the old factories to be moved from downtown to the suburbs, resulting in a series of social and economic changes.

Figure 2.4: Beijing 798 Art District  
by Shuyi Gao



Figure 2.3 : Zhongshan Qishan Park Photo Credit: Turenscape  
Accessed: <https://www.turenscape.com/project>

## Case Study: Ruhr District

The Ruhr District, in the industrial heart of Germany, could be considered as a successful model facing this inevitable transition. As a historical resource-based district, the Ruhr also once suffered from the beginning of global trade, and increasing shrinking world-market for coal and steel. What they used to be proud of - coal mines, steel mills and blue-collar work force - are all facing dramatic changes. Fortunately, the district adapted to new circumstances by transforming its single productivity of heavy-industries into the attractions of multi-functional and artful urban space for residents and tourists. The renovation started by diversifying the economic structure, cleanup of the soil contamination for future redevelopment, and inviting colleges and institutions, in order to reconstruct the economic, ecological and social structure of the area. The most successful strategies in this plan are the intention to preserve industrial monuments, telling their stories, and leading the area as the capital of culture in Europe. The renovation of post-industrial Ruhr sets up a model for all the former mill-towns in the world that are valuing their industrial pasts, taking advantage of their unique cultural identities, and heading to creative and sustainable districts in the future.

Accessed: <http://www.latzundpartner.de/en/projekte/postindustrielle-landschaften/landschaftspark-duisburg-nord-de/>



Figure 2.5 : Aerial Image of Ruhr District

Accessed: <http://www1.wdr.de/nachrichten/ruhrgebiet/fotostrecke-internationale-gartenschau-ruhrgebiet-100.html>

Figure 2.6 : Duisburg Nord Landscape Park

Photo Credit – Latz + Partner



## 2.4 Greenway Planning and Design in Urban Areas

Through a review of recent literature on greenways within the profession of landscape planning and design, the definition given by Little (1990) in his book "Greenways for America" is widely cited: Greenways are protected linear corridors that improve environmental quality and provide for outdoor recreation. Jack Ahern (1995) points out five key ideas contained in definition: spatial configuration, linkage, multifunctional space, sustainability and spatial strategy. All of the special attributes of greenways are actually because of its unique spatial configuration within the environmental planning system. The distinct inherent linear characteristic relates greenways to the larger landscape context which evolves different kinds of scales and creations. It also gives the opportunity to apply multi-functional sustainable infrastructure and form integrated green space networks.

## 2.4.1 Ecological Structure and Function

Greenways improve the understanding of landscape ecology within the planning and design professions. Landscape ecology has dealt with assemblages of ecosystems occurring in a geographically defined region (Haber, 1990), and the healthiness and integrity of ecosystems cannot exist without dynamic living processes as well as the structure of ecological environments.

### **“Blue Corridor”**

In recent years, inner-city flood has become a significant urban issue in many cities. Stormwater management and waterfront ecological design have become essential processes in urban development. As a lot of cities have already implemented, the “blue corridor” integrates existing landscape form and elements, inserting infrastructure focusing on water management, and creating safe but also attractive public space. The project done by BIG in Manhattan could be a great example explaining this concept.

## Case Study: Big U by BIG Group

BIG's proposal, The BIG U, embraces the concepts of social infrastructure and hedonistic sustainability. It envisions a 10-mile protective system that encircles Manhattan, protecting the city from floods and storm water while simultaneously providing public realms specific to the needs of the city's diverse communities. The BIG U protects 10 continuous miles of low-lying and vulnerable urban area, and gives a creative solution for reusing public space. In this project, the "blue corridor" consists of three compartments that function independently to provide flood protection. Each compartment comprises a physically discrete flood-protection zone that can be isolated from flooding in adjacent zones. At the same time, each presents opportunities for integrated social and community planning. In terms of planting, both berms and bridges are wide and planted with a diverse selection of salt tolerant trees, shrubs and perennials, providing a resilient urban habitat. We could easily see that the BIG U project proves the efficiency and benefits of implementing a blue corridor that protects the urban area from inner and outer flooding, but also provides vivid public space at the same time.



Figure 2.7 : Aerial Image of The BIG U project Photo credit: Bjarke Ingels Group  
Accessed: <http://www.big.dk/#projects-hud>

## 2.4.2 Social Integration and Public Recreation

Greenways can help meet important human needs for recreation and contact with nature (Matsuoka & Kaplan, 2008). Recreation corridors invite many opportunities for people to experience landscape. Linear spaces can take advantage of the local landscape (for example: riverfront corridors), serving as highly inviting public space that can be easily accessed. Another characteristic of a recreation corridor is multifunctionality. Because of the linear spatial configuration, context along the corridor is always considered during the planning and design of the greenway to include the diversity and identity of different parts of the design. This particular characteristic contributes to the diversity and flexibility of activities along the corridor.

## Case Study: Sønder Boulevard in Copenhagen

Sønder Boulevard in Copenhagen was redesigned to make an active urban space. From a dilapidated thoroughfare dominated by traffic, Sønder Boulevard has been transformed into a popular public space with green areas and facilities for sports and games. The width of the median strip has been expanded to 15-17 meters. Instead of planting trees in long, straight lines, the recreational corridor was created to be various in form and diverse in function. Different kinds of small spaces along the boulevard attract a lot of local people to enjoy their leisure time in the neighborhood.

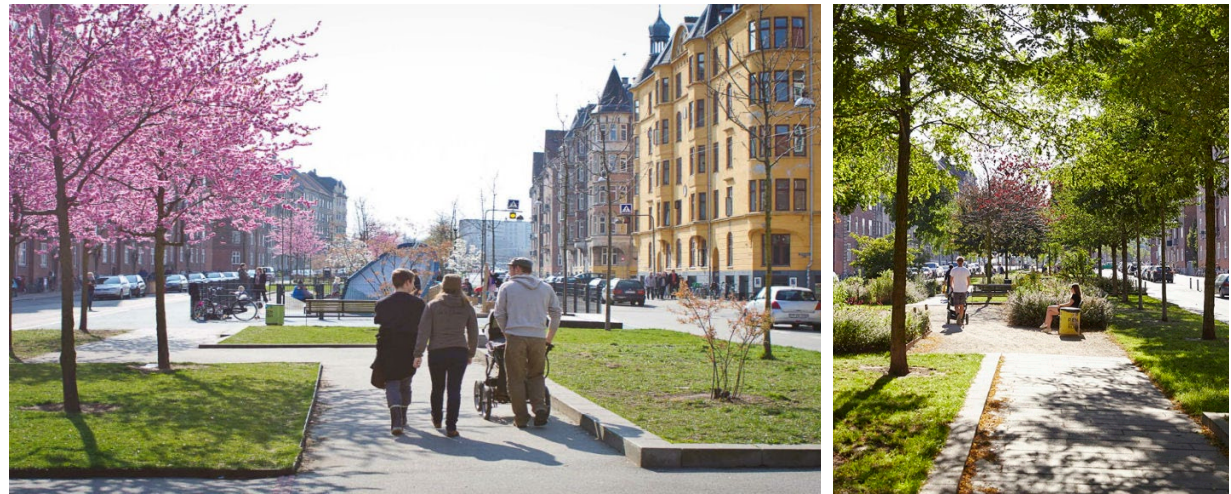


Figure 2.8,2.9: Sønder Boulevard in Copenhagen  
Accessed: <http://www.visitcopenhagen.com/copenhagen/sonder-boulevard-gdk705372>

### 2.4.3 As a matter of memory | Historical Corridor

After a three-month study in Berlin, the concept of a historical corridor inspired me based on the diverse and long history of Berlin city. Walking along the Berlin wall, or the redesigned waterfront green space of the Spree River, it feels just like walking through history. The linear space with representations of special historical symbols gives people the chance to recall and think deeply upon the past and also the future.

## Case study: Engelbecken in Berlin

Take Engelbecken in Berlin as an example. Engelbecken is located in the district of Kreuzberg, which has more than 200 years of history. The linear park was built on a rich history of the Engelbecken canal - being used and abandoned, filled and refilled over and over again because of the war and some historical reasons. Most of the canal now becomes a sunken park for runners and bikers, but also provides a memorial of the canal's rich history; the lake is still maintained as a water feature. It's an impressive demonstration of how the public sphere has been transformed by religious and migration-related practices, from the largest Turkish city, to the symbol of division (old Berlin Wall), and finally into the public realm for people with different religions and cultural backgrounds being together.

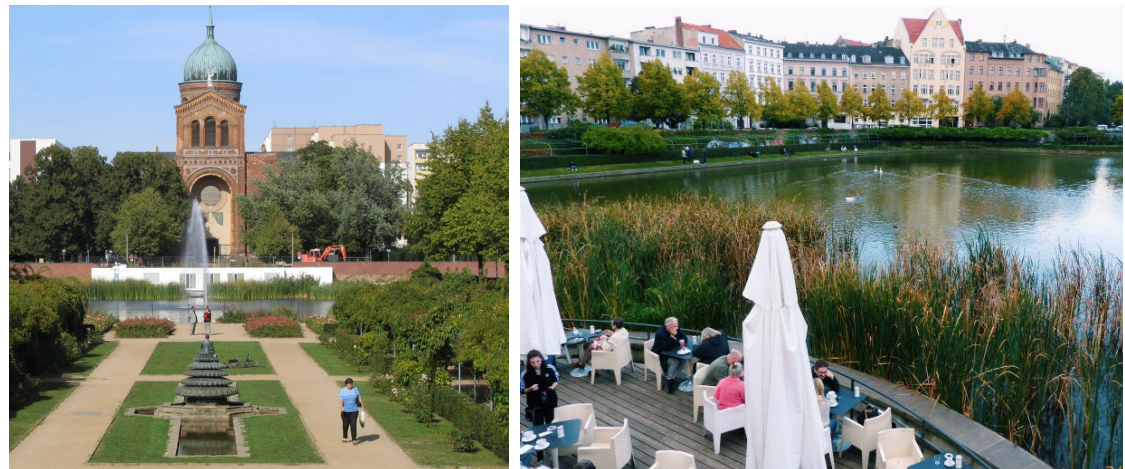


Figure 2.10,2.11: Engelbecken in Berlin by Shuyi Gao



# 03 Research Process | Renewal 2000+



### 3.1 Site History

My hometown Shenyang is a city with a long history. It was once the Manchu capital dating back to around 1625. Treasures of the royal palaces, gardens and spirits in Shenyang are considered among the most important monuments throughout the country. Due to the critical position in the north-east military command, Shenyang has suffered a lot from the war in the early 20th century, but it was also when the city began expanding out of its old city walls. In order to support the military use and accelerate economic development, the study area, Tiexi District (which means the South Manchurian Railway) had become the new industrial center of Shenyang.

In the 1950s, Shenyang, especially the Tiexi district, entered a rapid industrialization process. Tons of new factories were located closely next to each other, with thousands of workers making their every effort to contribute to production. The spirit of the workers encouraged millions of people in the country during the early years of the New China, and also formed a kind of city pride.

1990S ECONOMIC RECESSION | FACTORY BANKRUPTCY  
2000S RELOCATION&REDEVELOPMENT



Figure 3.1 Site History represented by Shuyi Gao

Similar to the history of the Ruhr, Shenyang also faced economic recession and process of deindustrialization. In the late 1990s, most of the factories went bankrupt, and millions of workers lost their jobs. The former thriving and busy factories suddenly were abandoned until the renovation plan was implemented in early 2000s. I remember the district our family used to live in being called “Tiexi Vacation Village” because no one had a job at that time. Suffering from the poor condition of the factories, the workers refused to leave because of their sense of responsibility and their deep attachment to the place. Finally in 2000, the city decided to relocate most of the factories in the inner-city to rural areas, opening more opportunities for mixed-use redevelopment, and more importantly, subsidizing the factories with the land price difference.

Today, after the renewal plan of Tiexi District has been implemented, most of the old factories in the district have disappeared, except a few that were preserved as historical buildings. The district has become a mixed-use area with high-density residential buildings, commercial complexes, recreational centers, and of course the memory of the industrial past.

### 3.1 Site History

Located in the heart of Liaoning Province, the study area Tiexi District plays an essential role in the Regional Development Plan - serving as the economic engine to facilitate the development of the industrial corridor, which connects Shenyang, its surrounding towns, and several important harbour cities. This important regional role of Tiexi District also determines its rapid urbanization and the increasing need for urban renewal process.

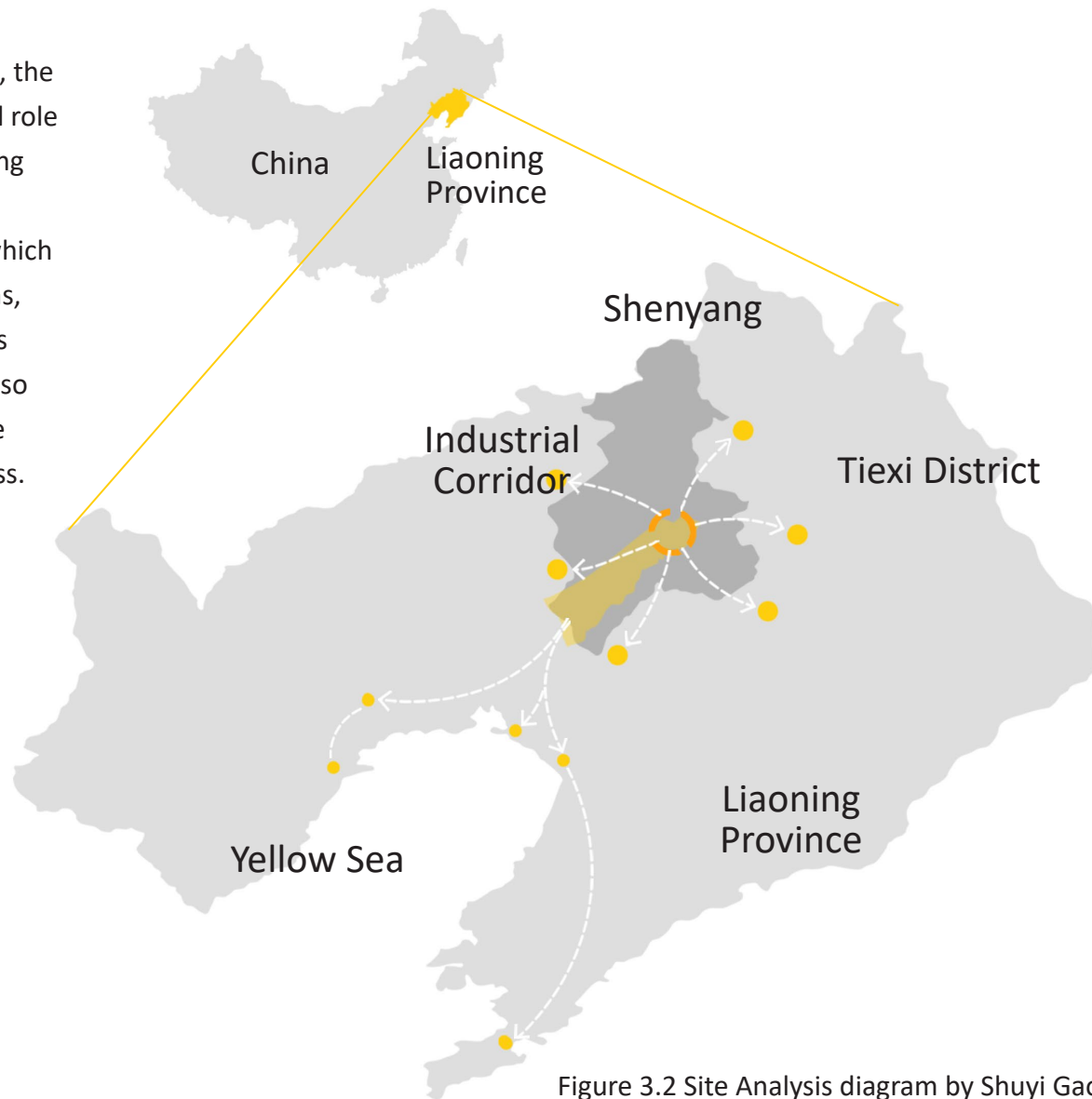
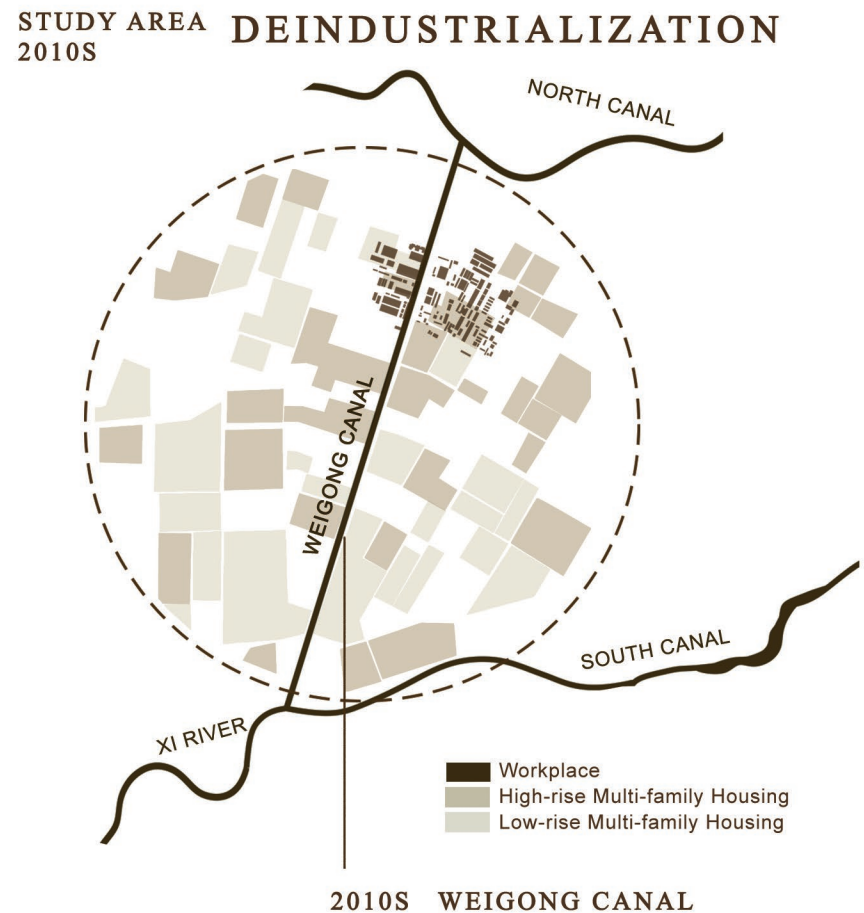
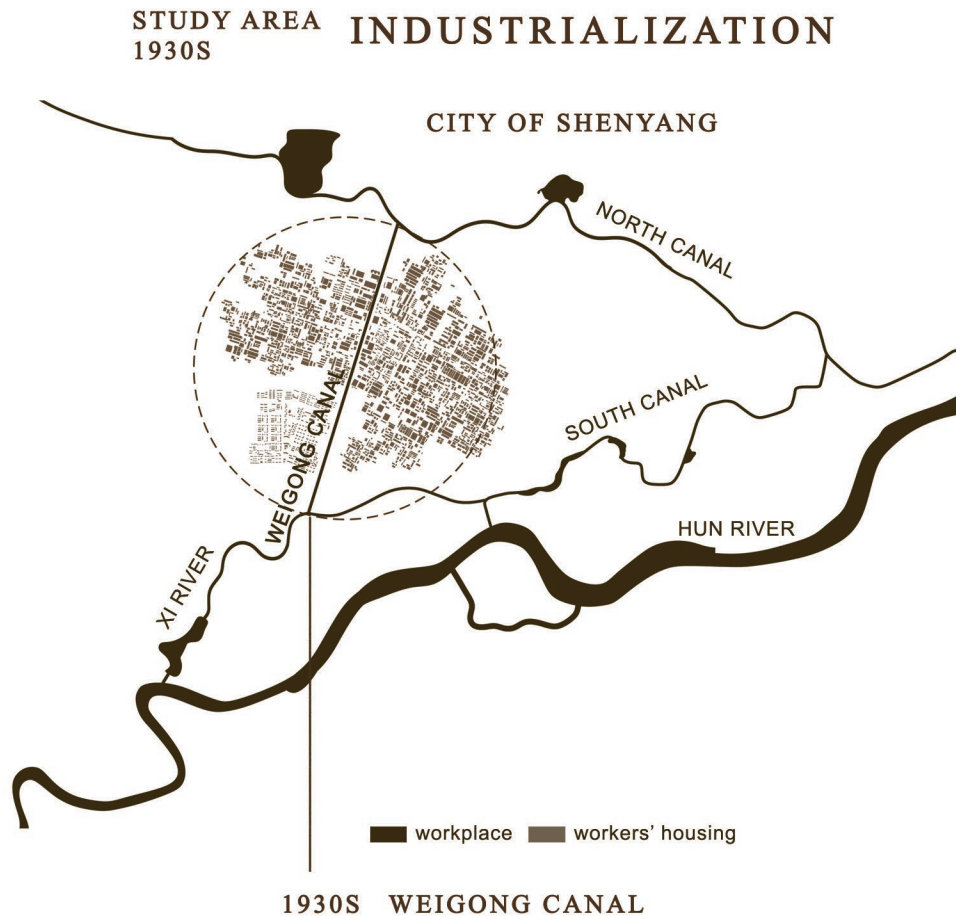


Figure 3.2 Site Analysis diagram by Shuyi Gao

### 3.2.1 Zoning Change

With the replacement and relocation of the factories from the old town center to the suburbs, the economic and urban structure has changed dramatically from 2000s. Within 10 years, industrial land has been reduced 1123hm<sup>2</sup>, shrunk almost 30 percent. Most of these industrial lands have been redeveloped as residential and commercial areas. The former urban structure of residential and industrial use being distributed separately in the city has been totally changed.

The rapid urban expansion and redevelopment brought fresh motivation for regional economic growth, enhancing the improvement of multiple industries, and also inviting diverse group of people live in Tiexi District again. However, at the same time, new urban issues emerged along with successes. First of all, with the increasing number of residents living in this area, the average utilization of urban land per person dramatically decreased. Urban facilities were also rather hard to be built quickly in order to meet the enormous demands. As a result, the life quality in the district was surely decreased. Secondly, a large number of workers had to travel for a long time to get to their factories in suburburban areas, which created a big traffic problem.



Weigong Canal has been mainly functioning as drainage canal since it was first built in around 1930s. Because of a large amount of industrial waste water runs into the canal everyday, the soil and the waterbody itself was heavily polluted for a long time.

Figure 3.3 Zoing Change diagram by Shuyi Gao

As the rapid relocation and redevelopment happens around this area, the canal itself hasn't change- remained as drainage canal for the district. However, this only function does not meet the demands of this shifting and diverse district anymore.

Back to 1980s, the city decided to stop every drainage pipe that lets waste water run into the canal, and purified the water. Afterwards, the canal remained clean for several years, but does not have the capability to self-cleaning.



2002 District Zoning



2012 District Zoning



Figure 3.4 Zoning Change from 2002 to 2012  
 Accessed: May, 2015 Urban Study(Chinese)

## 3.2.2 Major Industrial Restoration and Renovation Projects

### Railway Special Line of Industrial Material Transport

There were 57 branches of railway special lines within the district before the relocation of the factories. Tracks and trains were spread all over the area, so that every factory had its own special line for high efficiency. As the factories were replaced, most of the railways were either removed or abandoned. Instead of providing an essential role in the industry chain, they now exist as forgotten space in the city.



Figure 3.5 Site Photo of Abandoned Railway Line Accessed: <http://www.hasea.com/>

## 3.2.2 Major Industrial Restoration and Renovation Projects

### China National Industrial Museum

The China National Industrial Museum was designed and renovated from the former foundries and workplaces of Shenyang North-east Foundry. First built in 1939, the foundry once covered 330,000 sq m<sup>2</sup>, providing jobs for almost 6000 people of Shenyang. Now, the main foundry is relocated in the suburbs, and the historical buildings have been preserved as a valuable industrial heritage site.



Figure 3.6 China National Industrial Museum by Shuyi Gao

## 3.2.2 Major Industrial Restoration and Renovation Projects

### Soviet Style Residential Buildings

The Workers' Village is a famous residential project started in the 1950s in Tiexi District. In 1952, phase one of the Workers' Village was finished with 79 three-story Soviet Style residential buildings, and accommodated over 7000 workers and their families. By 1957, the total footprint of the village expanded to 730,000 sqm<sup>2</sup>, and became the biggest workers' residential cluster throughout the country. The construction of Workers' Village provided vibrant social space for the workers at that time. Abundant facilities and activity centers deeply enriched the life of workers, and built up a strong sense of community among them.



Figure 3.7: Workers' Village in 1952  
Photo Credit: China National Industrial Museum

## 3.2.2 Major Industrial Restoration and Renovation Projects

### Soviet Style Residential Buildings

After almost half a century, the timeworn buildings and facilities had failed to integrate with the high-density redevelopment of the area. Thus since 2003 most of the residential buildings have been torn down and replaced by high-rise apartments. Seven buildings were preserved as historical structures, where all the former furniture and household supplies were maintained the same as the 1950s in order to memorialize the spirit and the collective life of the workers.



Figure 3.8: Workers' Village in 2000 Figure 3.9: Workers' Village in 2013

Photo Credit: China National Industrial Museum

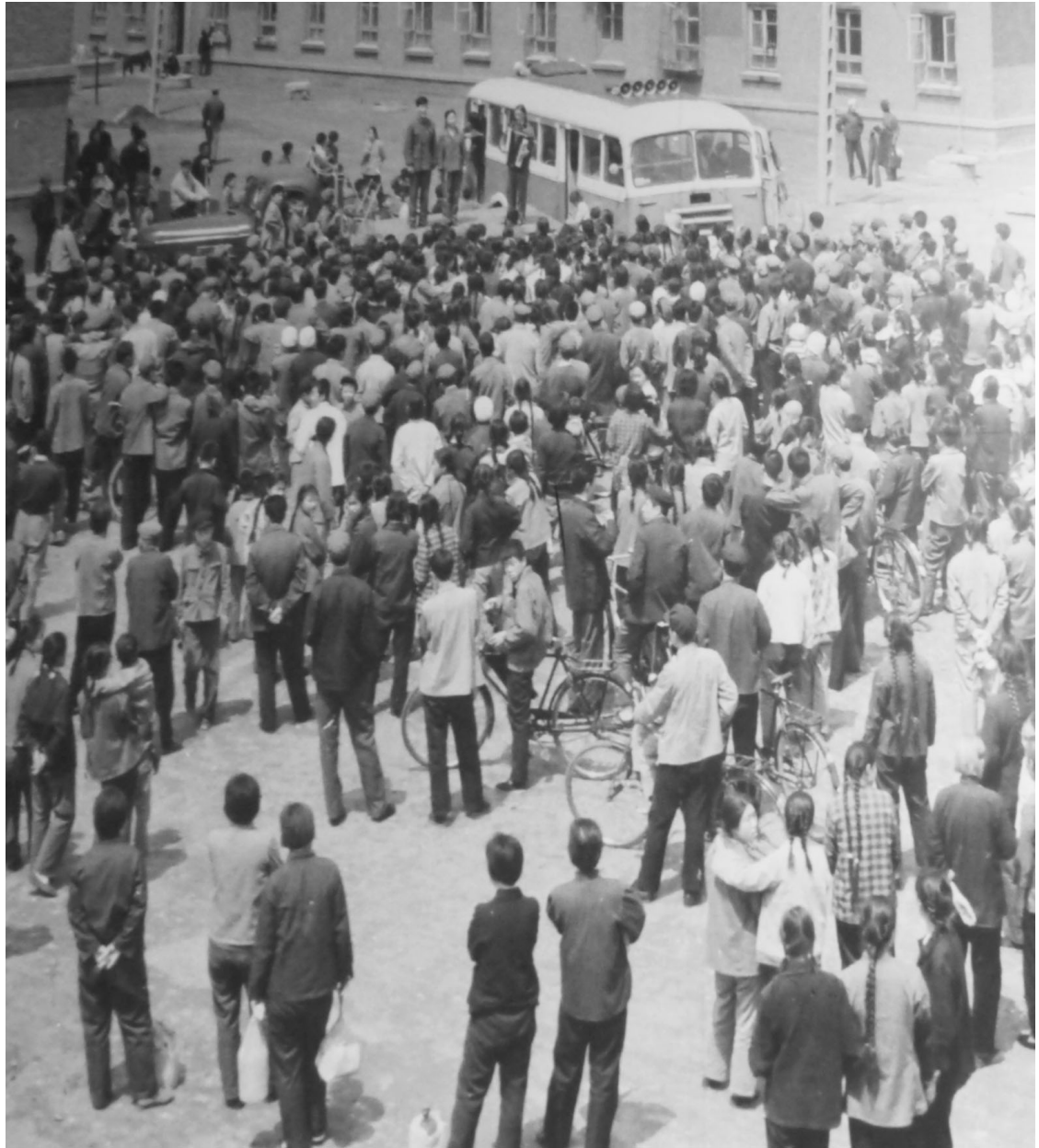


Figure 3.10: Workers' community event in 1973  
Photo Credit: China National Industrial Museum



Figure 3.11



Figure 3.14



Figure 3.12



Figure 3.15



Figure 3.13



Figure 3.16

Figure 3.11-3.16: Current Site Photos of Workers' Village by Shuyi Gao

### 3.2.2 Major Industrial Restoration and Renovation Projects

#### Sculpture and Art Installations in Honor of the Industrial Past

Along the Jianshe Road, there are a series of sculptures and art installations in honor of the industrial past of Tiexi District. These sculptures embody the typical symbol of the industrial culture: machine parts, steel-making tools, life of workers and so on. The intention of the installations should be appreciated, but in terms of the actual environmental impact and the spatial experience, the industrial identity can be represented in more effective landscape elements, and more interaction with the users should be incorporated.



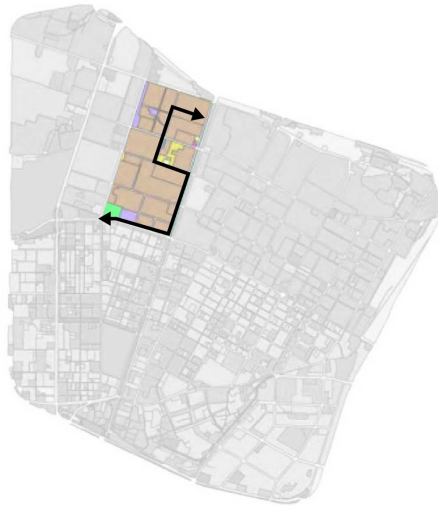
Figure 3.17,18: Art installations along Jianshe Street by Shuyi Gao

### 3.2.3 Circulation and Public Space Study

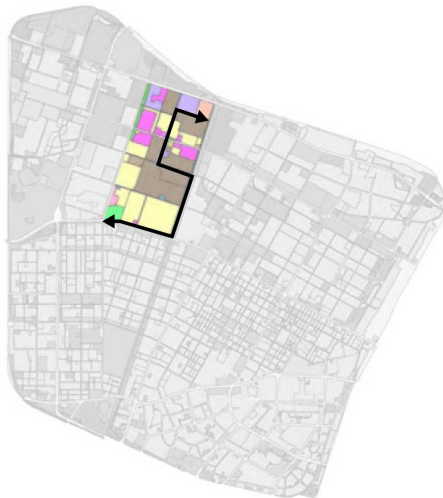
In this section, the public space study will be presented along four different routes, each with unique characters. The goal is to study how well the public open space is being used in the Tiexi District, and how essential aspects like weather, time, pavement, plantation, and facilities in the space affect utilization. In addition, the four selected routes include almost all the important destinations within the area, so the route study will also show how attractive these destinations are, as well as the connection between routes.

### 3.2.3 Circulation and Public Space Study

Route 1



Route 1 goes around the Industrial Museum, and includes some environmentally sensitive sites in between the redeveloped projects and current industrial site. This area was fully developed as a heavy-industrial site a decade ago. Today, residential and commercial functions have been incorporated, while it's still in a dynamic and continuous redevelopment process.



The research shows that the abandoned railway along Route 1 has already become the “gray space” in between the residential areas. Some parts were overgrown with grass and weeds; some parts were filled with rubbish; some parts were blocked out by brick walls. In other words, the transition between the former industrial site and the renovated residential area has not yet been favorably managed, resulting in a series of underused urban spaces. The interviews with the surrounding residents indicated that they are fairly concerned about the safety and environmental issues along the railway. Some have even considered moving because of the situation.

Figure 3.19: Public space study diagram I by Shuyi Gao



Figure 3.20-23: Site photos by Lei Gao

### 3.2.3 Circulation and Public Space Study

Route 2



Route 2 shows the dramatic change resulting from turning the industrial sites where all the foundry and workplaces were located into a commercial-oriented destination district, attracting new investors and customers and facilitating the local economy in a positive way. It is indeed a relatively popular route for surrounding residents, especially when the night market is held in Summer. However, the pedestrian walk is not planned and designed in an inviting way, which is affecting the quality of the public experience.

Figure 3.24: Public space study diagram II by Shuyi Gao



Figure 3.25-28: Site photos by Lei Gao

### 3.2.3 Circulation and Public Space Study

#### Route 3



Route 3 goes through the waterfront space along Weigong Canal, and also connects many important destinations along the major street of the district, including Tiexi Square which is the memorial plaza of the industrial culture. There are also many sculptures and art installations inserted along this route. The linear green space along Weigong Canal is not very inviting for people, as the facilities are old, the plants are not maintained well, and few programs and activities are planned in the space. More importantly, little diversity and variation in space can be seen along the park, which makes the park just a green buffer between the canal and residential area rather than a vibrant public space. The installations along Jianshe Street rarely have any interaction with the passengers, more often being ignored according to the study. The intention to insert these sculptures should be appreciated - to honor the industrial production in the past as a kind of city pride, while the way they are located can be improved in the future. Most of them are being placed on the sidewalk, surrounded by plenty of cars; or appear to be abrupt, without any other facilities for sitting, or giving the context for memorializing the history, which is meant to be the purpose of the installations.

Figure 3.29: Public space study diagram III by Shuyi Gao



Figure 3.30,31: Site photos by Lei Gao

## 3.2.4 Quality Criteria

Overall, the study shows plenty of problems and potentials in terms of public open space system.

First of all, a large amount of underused sites and vacant sites affect the quality of public space system severely. There are basically two reasons cause the problem. First of all, as a high-density industrial district ten years before, this area was filled with abundant facilities and land that serve for the industrial use. Some of the locations are attractive to new developers and investors, while the others might be left out as vacant sites. In addition, since a part of the enterprises were restructured during the relocation, ownership issues were often involved, which result in the redevelopment process of the land. Secondly, the city of Shenyang always took major effort for manufacturing and heavy-industries before deindustrialization started, and as a result, the design and maintenance of a lot of urban facilities and urban spaces needs to be improved.

The second problem is the limited accessibility of public space within this area. Before 2000s, factories and workplace were laid out closely next to each other; while from what the study shows, the redevelopment plan within last decade did not considered the spaces for public or recreational use as the first priority, instead, almost all of

the workplace were replaced by high-density residential areas. Most shared space is inside bounded residential complexes, as a result, accessibility to public space is limited, which greatly impacts the reconstruction of social order and sense of community.

Thirdly, the activities that can be incorporated in the space are limited. According to the changing life style and demands of the citizens nowadays, public space should be carefully programmed response to the users. As today's citizens have more options on how to spend their time, they will only spend it in the public realm if it is of high quality and accessibility and is easy and convenient. There are two principal forms of activity that take place in public spaces, activities that are made out of necessary (shopping for groceries, waiting for transportation) and those that are made out of leisure (going for an evening walk, playing badminton, sitting at a cafe) Leisure activities, or optional activities, are often found in public spaces of high quality. The current situation in the area is most of the residents go out for necessary activities, among which shopping is a big part; while there are only few high-quality space being as leisure space for people - Laodong park is the most popular one. It provides various kinds of space and activity options for people, especially the abundant gathering space is the best place for senior citizens to play China Chess and Poker. This is actually highly related to the typical Chinese activity patterns.

### **3.3 Emerging Identity**

In this section, the emerging identity of Tiexi District will be explored based on the five categories of influential factors of urban identity. The following summary is also based on a number of in-depth interviews conducted by the author in the Summer of 2016. Key findings from the interviews are included.

## Cultural factors

Religious factors often have positive influence on urban identity, while in the city of Shenyang, although a few people believe in Buddhism, this may be considered a minor impact. Famous for its folk dance “Er Ren Zhuan” and “Yang Ge”, and Chinese comedy skit performances, the people of Shenyang are known as very warm and enthusiastic. Consistent with this character, also different from typical Chinese activity patterns, Shenyang people are relatively outgoing, love dancing and singing, and tend to talk in a more straightforward and confident way.

In recent years, there are emerging popular activities for different groups and ages of people. Square dancing is a kind of performed exercise with music played in neighborhood squares, plazas or open spaces in parks. This particular way of exercising is derived from the form of Yang Ge in Shenyang, which became very popular in the last decade, and is being followed by people throughout the country. Square dancing used to be performed mainly by middle-aged women, while more recently teenagers started getting involved and created a different style which is more like street dance.

The football team of Shenyang is also very famous in China, which is reflected in the large number of football fans in the city. Other than football, jogging has become an extremely popular exercise in recent years. There are self-organized jogging teams getting together and jogging every day in a particular time and location. Also with the increasing number of exercising facilities and trails being built in the city, the passion of citizens for healthy living has been encouraged very much.

## **Historical Factors**

As mentioned in the site history, the city has multiple layers of historical symbols through all ages. In the Tiexi District, the most important historical factors are from its industrial past. The spirit of workers, the pride in the former industrial production success, and even the urban renewal itself have become critical historical factors. Everyone interviewed spoke about their deep attachment to the memory of the old days in factories, but also their surprise of seeing the district being renewed so much. Although people might have different opinions on how well the renewal process went, it is still positive that the renewal itself has become a significant historical event in peoples' minds.

## **Political Factors**

The political structure of Shenyang used to be considered as “over-managed” and “low-efficient”. Part of the dissatisfaction comes from the city-wide failure on the economy around 1998, while in recent years, with smarter policies, there is increasing trust towards politics.

## **Environmental Factors**

As the most important heavy-industrial district before the renewal, Tiexi has always been considered as a highly-polluted area. As one of the primary goals of the renewal, the image of an ugly district has started to change, including towards a green and sustainable eco-district. This is closely related to the increasing environmental

awareness of the citizens, which is a critical changing factor in the district.

Weigong Canal used to be a smelly drainage canal. Today, it has been cleaned up and prepared for further planning and design, for activation and beautification as the essential environmental symbol of the district, even the city. The quantity and quality of parks and green areas are both not very attractive in the district, except for Laodong Park as the historical site, which has remained popular since the 1950s.

The unfavorable traffic conditions make a negative impact on the urban identity. The district is highly vehicle-oriented, and extremely congested in rush hours. Other factors such as the lack of street facilities and public space also have a negative impact.

## **Social Factors**

As mentioned in Cultural factors, Shenyang people are very enthusiastic, which also reflects on social relationships. People tend to meet each other, chatting, walking, and gathering in both private and public space. In recent years, with the intense high-rise residential development and the lack of public space, social interaction has dramatically decreased in the district. What's more, with the memory of a former vibrant collective life and the strong social bonding before urban renewal, a lot of people, especially retired people and senior citizens, feel lonely and unhappy living in the district. On the other hand, teenagers feel bored facing the increasing trend of aging population and limited activities and attractions in the district. The newcomers in the district are also a barrier towards social cohesion. The district is renewed mainly to attract new dwellers and meet their demands, resulting in the lack of considerations and representations of historical identity; this lack of place identity has become a wall between the past and future.

### 3.3 Emerging Identity | Summary

In general, some critical emerging identities would be summarized as follow:

- (1) Lack of representation on iconic district feature;
- (2) Increasing demand for social life;
- (3) Increasing passion on healthy living;
- (4) Increasing Environmental Awareness, and need on environmental improvement.



### Emerging Identity

Figure 3.32 Emerging Identities, Google image



04 Design Exploration | Renewal 2017+

# 4.1 Design Vision

This design vision is a response to the spatial and identity study of Tiexi District. The lack of focus on representation of urban identity and quality of public space are the major problems in the recent urban renewal process. Nowadays, with the increasing passion of citizens on healthy living and sustainable urban environments, another round of urban renewal, with updated contemporary values and thoughtful and systematic strategies, is needed to be implemented.

In this thesis, the design exploration is focusing on underused sites in the district. The abandoned railway line, underused green space, and vacant post-industrial sites will all become the driving engine towards a better eco-district, rather than the forgotten space being “squeezed” by different renovation projects. The theory and precedents of greenway design will be implemented in the design, connecting these underused forgotten spaces, and establishing an attractive urban green network.

The role of culture and history will also be emphasized in the design strategies. Right now, traditional intense industrial production is not the development pattern for Tiexi, which means we need new engines to activate the local economy as well as the social atmosphere. In this circumstance, it is essential to consider original urban identities as the root and resource to stimulate the inherent creativity of people, construct a system of icons and interventions, and propose new economies to approach the Creative City.

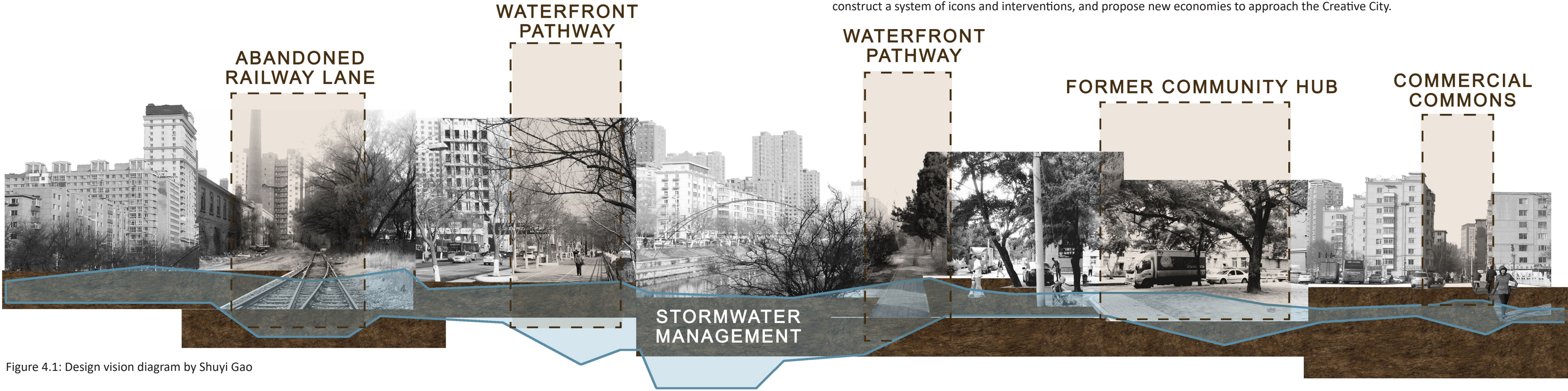
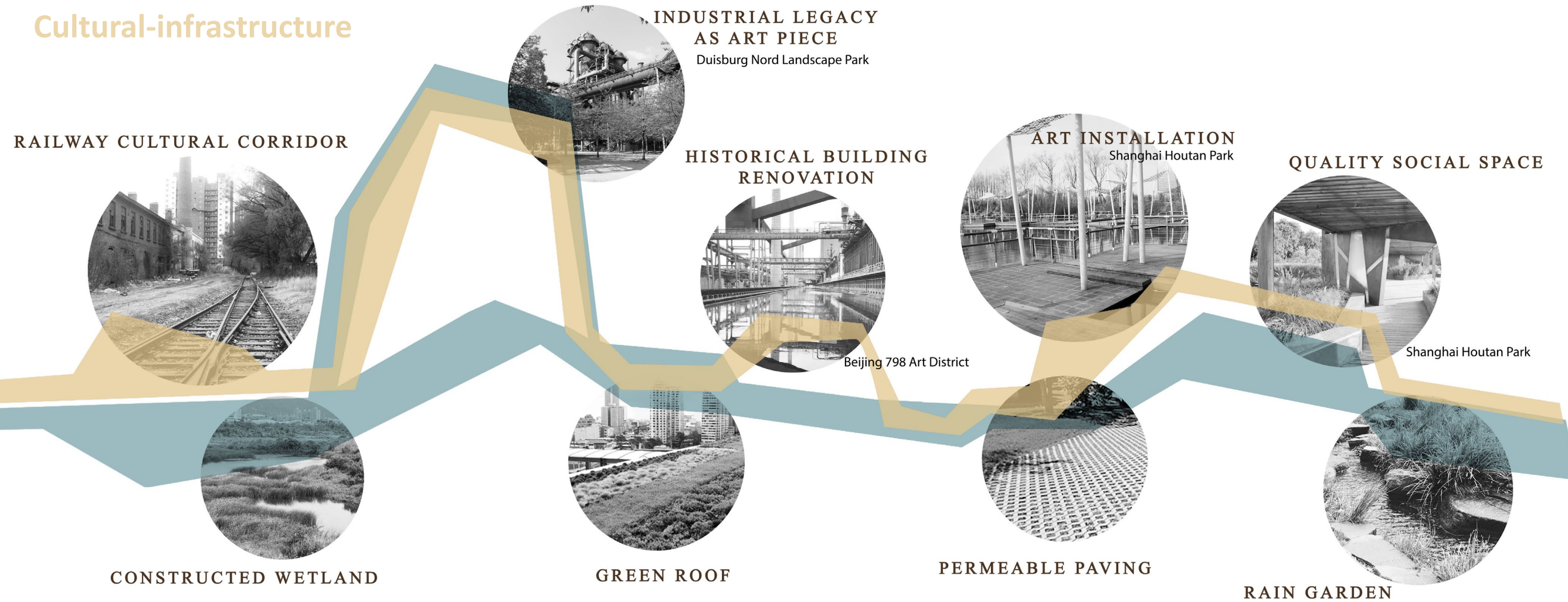


Figure 4.1: Design vision diagram by Shuyi Gao

## 4.2 Design Strategy

### Cultural-infrastructure



### Eco-infrastructure

Figure 4.2: Design strategy diagram by Shuyi Gao

Based on the considerations for both cultural and ecological urban issues, I developed the design strategy of “eco-cultural infrastructure”. The eco-cultural infrastructure proposes a flexible and adaptive urban framework which responds specifically to the multiple issues of underused sites. The “eco-infrastructure” will includes techniques in ecological design: rain gardens, bio-swales, and permeable pavement for stormwater management as well as softening the soil and ground cover materials; ecological banks for Weigong Canal, and floating wetlands as the method for purification of the waterbody. On the other hand, the “cultural-infrastructure” will includes a series of essential artful installations as urban furniture, such as seating, raised flower beds, bus stop pavilions, and playful structures, as well as cultural elements such as steel material and telling stories on pavements. The central idea of cultural-infrastructure is to create special spatial experience through diverse landscape languages, to incorporate various activities, and to construct place attachment in newly-built urban spaces.

## 4.3 Site Selection

### 4.3.1 Green Network

Based on the spatial study, a series of underused spaces in the district will be presented, which serve as the foundation of a new urban green network. These underused spaces include four categories:

- (1) Unattractive pedestrian pathway;
- (2) Underused green space;
- (3) Abandoned post-industrial site;
- (4) Underused urban plazas.

The green network will be proposed based on the categories of underused space, which will include three different types of system plans:

- (1) Green Street Revising Plan
- (2) Linear Green Space Revising Plan
- (3) Residential Green Space Revising Plan



GREEN STREET REVISING PLAN



LINEAR GREEN SPACE REVISING PLAN



RESIDENTIAL GREEN SPACE REVISING PLAN

Figure 4.3: Green network diagram by Shuyi Gao

## 4.3 Site Selection

### 4.3.2 Priorities of Green Network

#### **Make connections**

In the middle of transformation, systematic planning is essential to set up the framework, and make sure we are on the right track. Especially with the unattractive pathways between several important focal points within the district, making connections by building continuous pathways, trails, and corridors will significantly facilitate accessibility and walkability that is missing in the current situation.

#### **Create attractions**

As increasing high-density residential buildings are being built in the district, there is a strong demand for creating new urban centers as attractions. The site selection for this purpose should also be considered in the systematic network. Especially reviving the former ignored and forgotten space as new centers will build a bridge between the past and future, which will facilitate the reconstruction of social cohesion and urban identity.

## **Rebuild Culture Identity**

“Art and culture must be recognized as central social infrastructures in the knowledge and informational society, and systematic planning must be carried out to bring out the creativity of the city’s people.” stated by Masayuki Sasaki in his research on Urban Regeneration through Cultural Diversity and Social Inclusion. This quote exactly illustrates the direction of development of post-industrial Shenyang. Growing from concentrated industrial development, it is now the right time for the city to revive and innovate unique culture identities. This process will be a long-term and emerging process, which requires clear systematic structures and the effort of every citizen. The culture of a city is formed by the thinking and behavior of everyone, thus, we as Landscape Architects, should take the role of facilitators together with designers, providing urban spaces and programs for the general public to get involved in the city regeneration process. Only in this way can we bring out the creativity of the city, and attract increasingly creative minds in the future.

## **Healthy Living**

As a former heavy-industrial city, there were plenty of urban environmental issues being brought up during the last decades. For example, the Heat Island effect is one of the problems that bothers the people of Shenyang. In summer, the temperature of the inner city area is at least three degrees Celsius higher than the rural area. Other than that, inner-city flooding is also a big problem. With the low capacity for draining heavy runoff, and the lack of green infrastructure to hold rainwater, congestion and incidents can always be found in rainy days. Thus, development towards healthy and sustainable living environments is absolutely on the agenda. Although implementation of the green network cannot completely solve the environmental issues, renovating the existing underused land into green space with ecological function can be a feasible and powerful strategy response using urban ecological design. In addition, the educational impact to the public can be beneficial in terms of approaching a sustainable eco-district in the future.

## 4.4 Design Challenges and Opportunities

### 4.4.1 Unattractive pedestrian pathway

The single improvement of pedestrian pathway could be a long-term and phasing project itself, while in this thesis, only pathway in essential location that complete the green network will first be considered. The strategy here is to inserting eco-cultural infrastructure as the systematic tool to improve the overall walkability of the district. Within this approach, the open space of pathway will be more flexible and multi-functional - as essential circulation for quick passing, but also provide the facilities and opportunities to stay and enjoy social life. Part of the pathway will also be integrated into the larger trail construction system.



Figure 4.4: Site Photos by Shuyi Gao



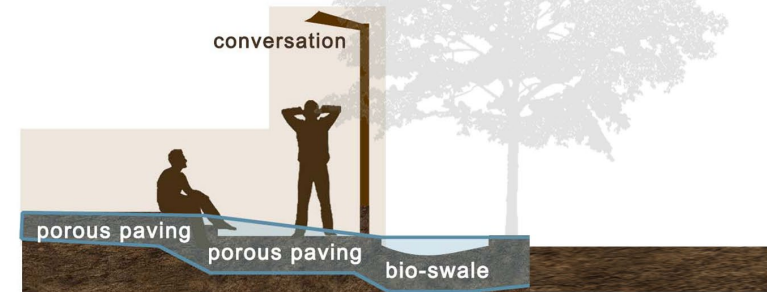
Site Photo

## Challenge

Current section of pedestrian pathway is not inviting, lacking the vibrancy of being urban public space.

## Opportunity 1

Opportunities for implying eco-cultural infrastructure and renovated the space as urban greenways.



## Opportunity 2

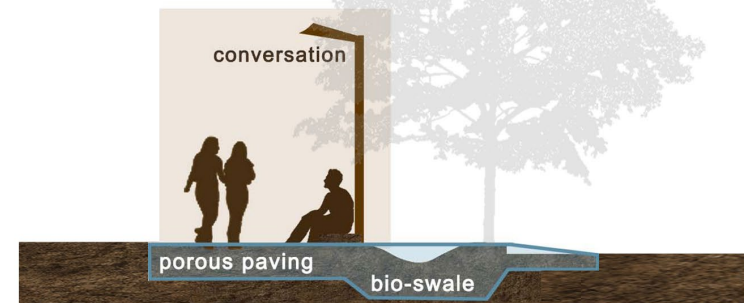


Figure 4.5: Suggested design strategy for pedestrian pathway

## 4.4 Design Challenges and Opportunities

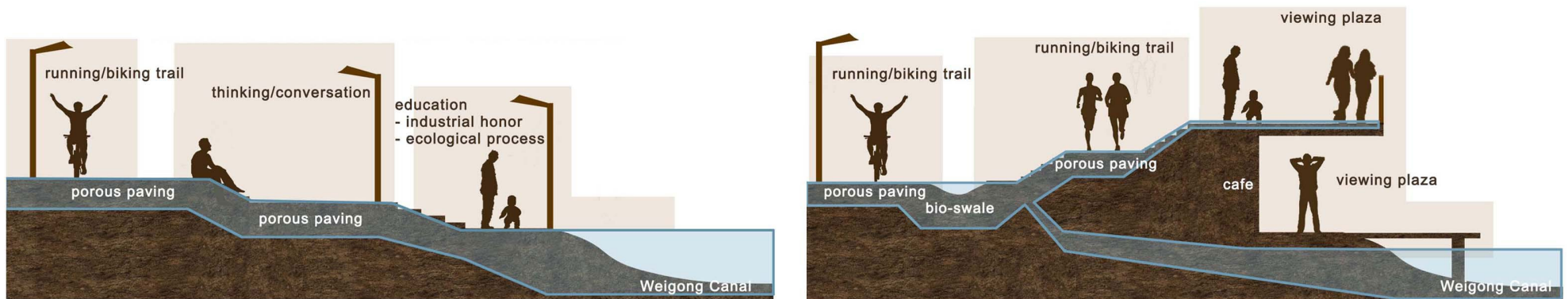
### 4.4.2 Underused green space

The waterfront linear green space along Weigong Canal should be the major renovated green space in the area. Weigong Canal is located in the center of Tiexi District, running from Xinkai Canal in the North to Xi River in the South. The total length of the canal is 8700m, and the part that runs through Tiexi District is 5800m length. Weigong Canal was first built in the 1930s, and mainly functioned as a drainage canal. Since almost 90% of the workplaces in Shenyang were located in Tiexi District, the waste water that used to discharge into Weigong Canal was highly polluted. Thus the waterbody and soil of the canal had remained polluted for a long time. In 1985, the purification and cleaning process of the canal was started. All the waste water discharge was cut off, the canal bank was widened and reconstructed, and the green space along the canal was also built at that time.

Today, with increasing environmental awareness of the people in Tiexi, Weigong Canal has the potential to be redefined as the icon for a new eco-district image of this area. The strategy here is:

- (1) Replacing the traditional way of canal bank construction with an ecological approach;
- (2) Adding constructed floating wetlands along the canal, in order to purify the water;
- (3) Creating open space with multiple activities planned in multiple levels, diversifying the spatial experience;
- (4) Planning continuous walking and biking trails with urban furniture and art installations along the canal, in order to make connections and meet the increasing passion for healthy living, which has the potential to build a strong and positive new urban identity in the future.

To implement these strategies, the eco-cultural infrastructure will be inserted according to the context.



Opportunity 1

Opportunity 2

Figure 4.6: Suggested design strategy for Underused Canal-front green space

Site Photo



Sidewalk

Roadway

Sidewalk

Weigong Canal

Linear Green Space

Roadway

Abandoned Workplace

Figure 4.7: Site Photos by Shuyi Gao

Current Site Section

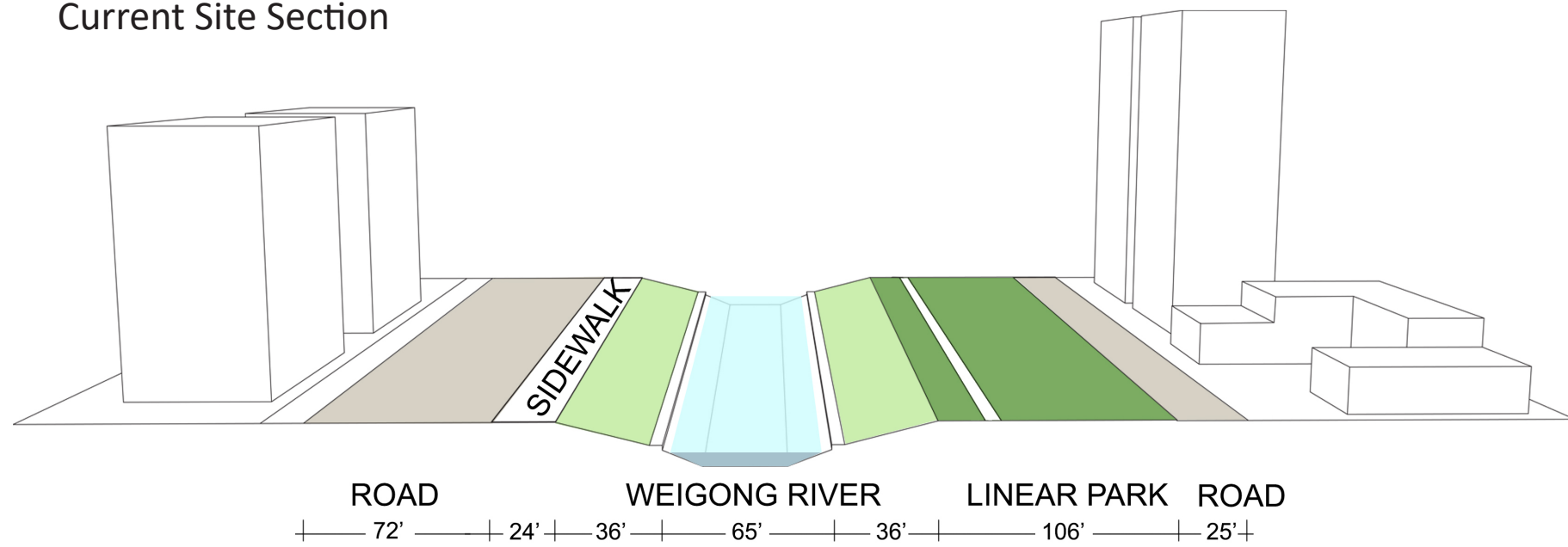


Figure 4.8: Current Site Section by Shuyi Gao

Proposed Site Section

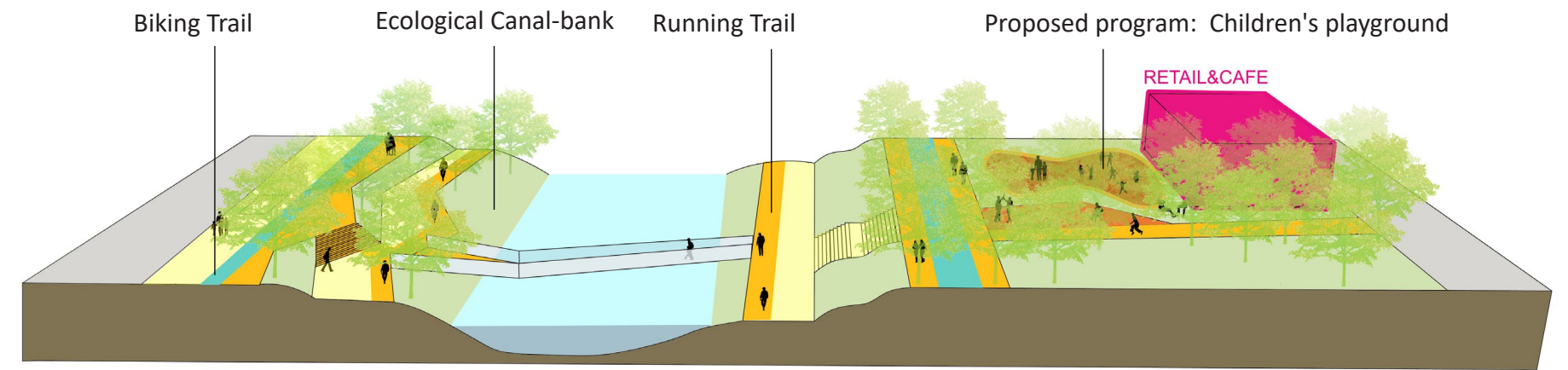


Figure 4.9: Proposed Site Section by Shuyi Gao

## 4.4 Design Challenges and Opportunities

### 4.4.3 Abandoned post-industrial sites

There are a lot of underused post-industrial sites in the district, based on the findings of the public space study. These sites have become a big environmental and safety issue for the residents in recent years. Thus in this proposal, these post-industrial sites will be redefined as the ecological and cultural corridors or centers instead of the gray space in the area. The abandoned railway line is a typical example here to be renovated. The primary strategies for the implementation of eco-cultural infrastructure on the former railway line will be:

(1)Renovating the urban space along the railway trail: proposing feasible and attractive programs according to the surrounding users, and emphasizing on the interaction between indoor and outdoor space;

(2)Restoring the abandoned track of railway into flower beds, bio-swales, trails or special pavement on the plazas, in order to create a linear iconic and cultural symbol that reminds people of the industrial past, and brings up the meaning behind the construction of new landscape.



### Site Photo

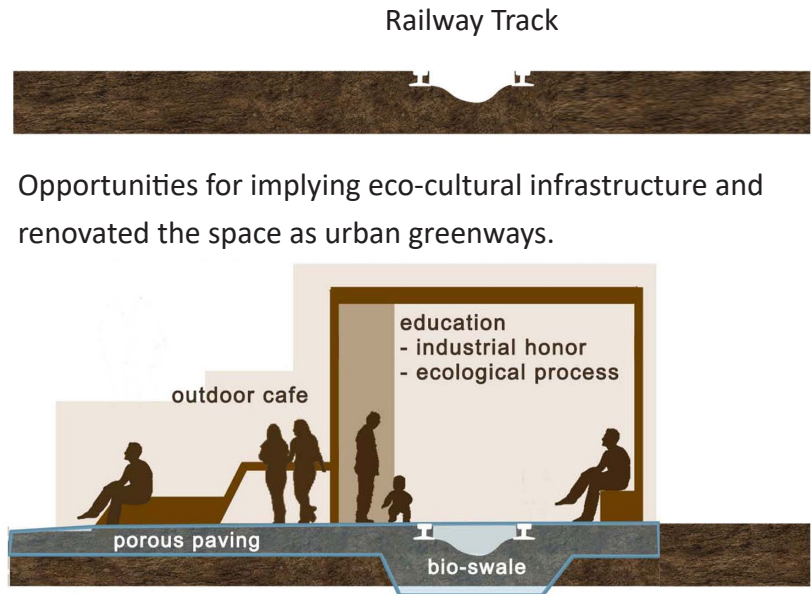
Figure 4.10: Site photo by Lei Gao

### Challenge

The previous railways are being abandoned and causing negative environmental impact within the district.

### Opportunity 1

Opportunities for implying eco-cultural infrastructure and renovated the space as urban greenways.



### Opportunity 2

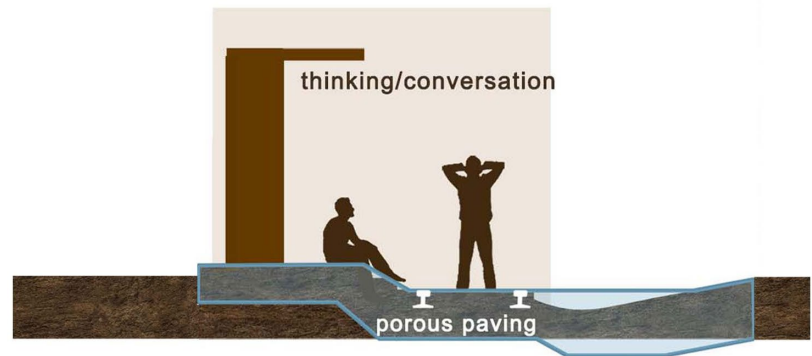


Figure 4.11: Suggested design strategy for Abandoned Railway

## **4.4 Design Challenges and Opportunities**

### 4.4.4 Underused urban plazas

Due to the lack of considerations for aesthetic and ecological value of the space in previous planning and design of the district, a lot of in-between space around residential buildings and public institutions are not being fully utilized. Taking advantage of these spaces will create more social space for the surrounding residents and also positively facilitate the inside program of the buildings. The strategies here will be largely dependent on the users and functions of the building.



Figure 4.12: Site photos by Lei Gao

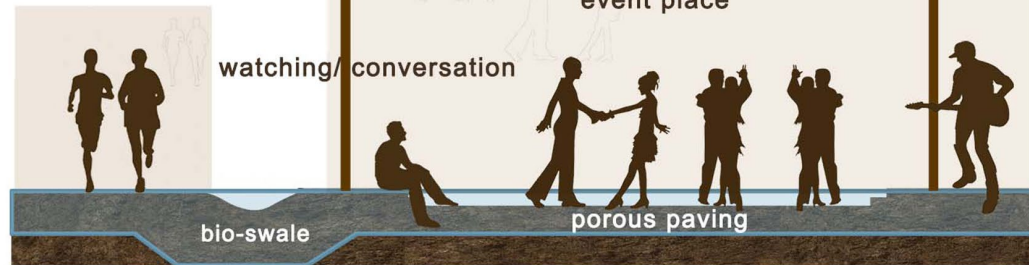
## Challenge

Current section of pedestrian pathway is not inviting, lacking the vibrancy of being urban public space.



## Opportunity 1

running/biking trail



## Opportunity 2

Opportunities for implying eco-cultural infrastructure and renovated the space as urban greenways.

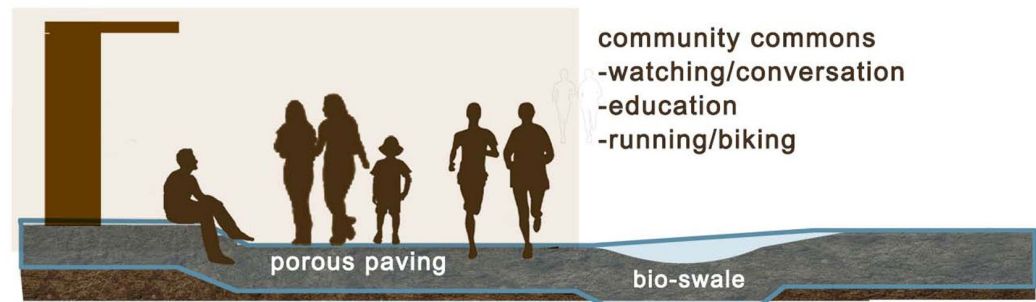


Figure 4.13: Suggested design strategy for underused urban plazas

## 4.5 Design Implication

### 4.5.1 Site I: Canal-front Green Corridor



Weigong Canal

Figure 4.14: Site I Location by Shuyi Gao

The site is selected to illustrate the multi-level and multi-functional canal-front green corridor design. The current typology of the waterfront public space is pretty simple and straight forward. Thus this design intervention aims at diversifying the spatial experience. A lower level of biking trail along the canal, and the street level running trail work together towards a healthy and vibrant green corridor. With the emphasis on emerging urban identity, structures made of rusty steel are inserted on site, to reflect the industrial past of the district, and also provide vibrant social space for conversations and public events that meet the demands of surrounding residents.

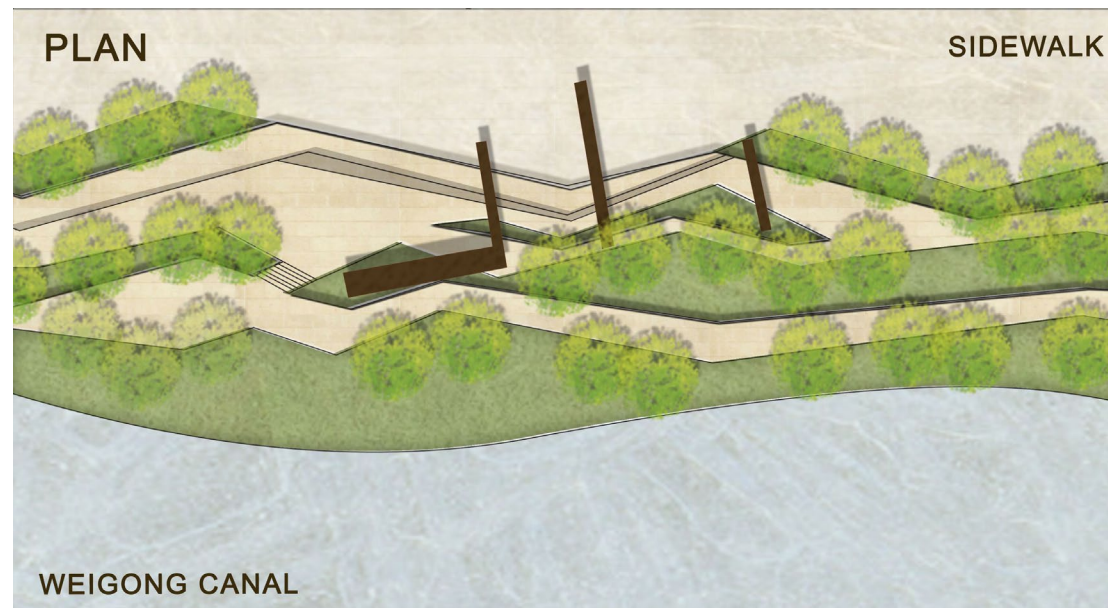


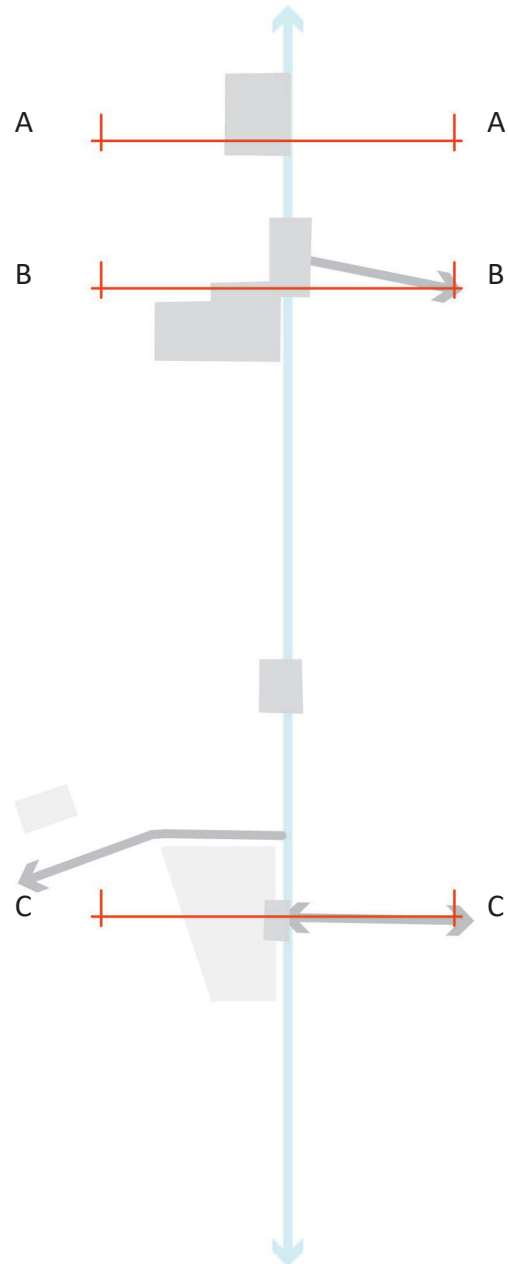
Figure 4.15: Site I plan by Shuyi Gao



Figure 4.16: Site I perspective by Shuyi Gao

## 4.5 Design Implication

### 4.5.1 Site I: Canal-front Green Corridor

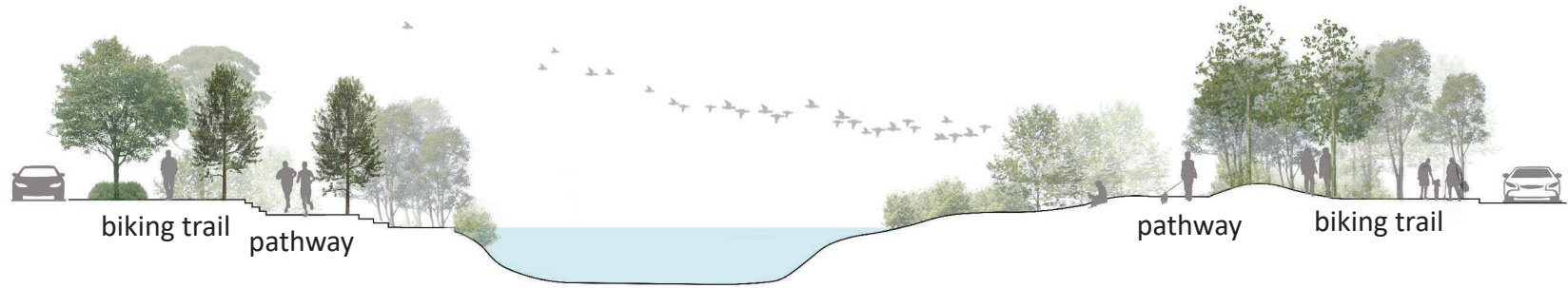


As a historical drainage canal, Weigong Canal has witnessed the industrialization and deindustrialization process of Tiexi District, but also been polluted greatly by the waste water from intense industrial production.

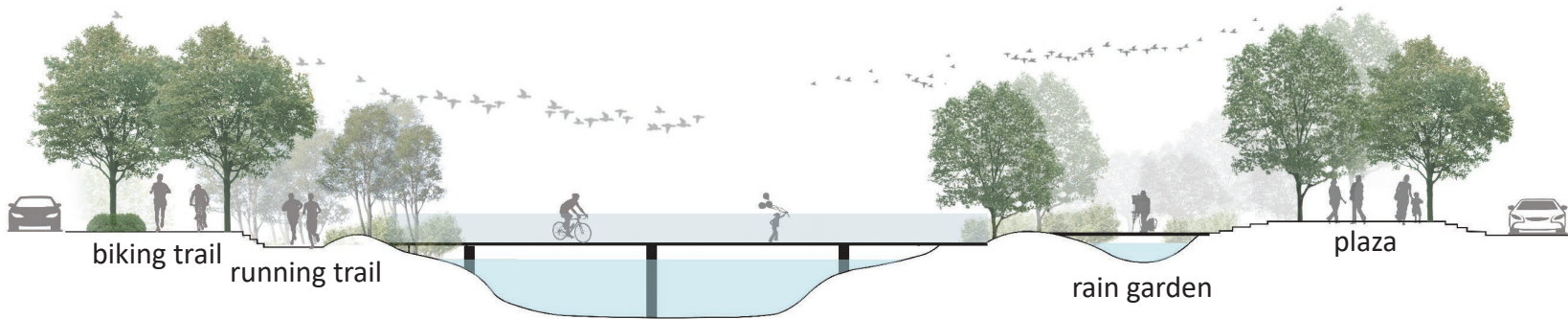
While today, with the increasing awareness on environmental health and aesthetic value, a new identity of Weigong Canal should be established. In this thesis, the bank of Weigong Canal is redefined as an ecological infrastructure that benefits the sustainable development of Tiexi in the long term. At the same time, multi-level and multi-functional space is designed in the green corridor, in order to facilitate social activities and rebuild the place identity.

Figure 4.17: Section Cut Location by Shuyi Gao

section A-A



section B-B



section C-C

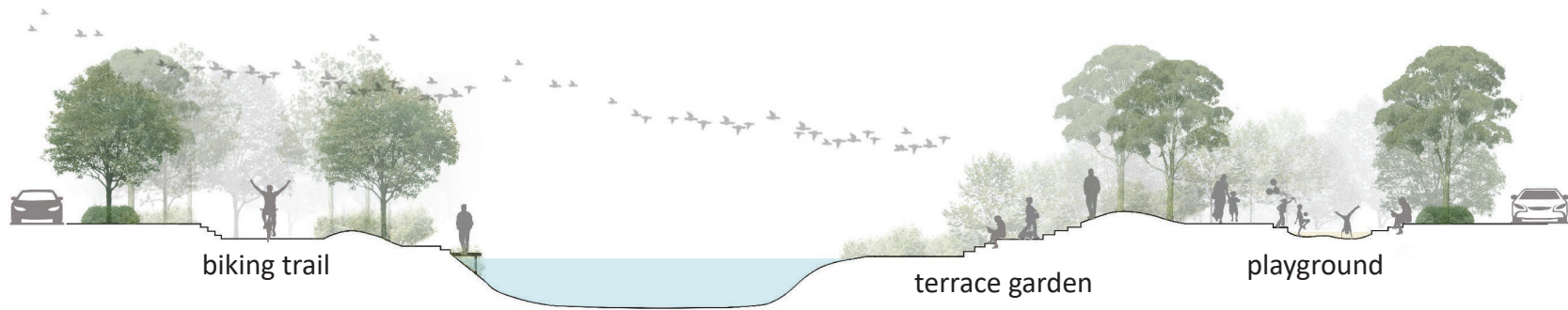


Figure 4.18: Canal cross sections by Shuyi Gao

# 4.5 Design Implication

## 4.5.2 Site II: Abandoned Railway Corridor

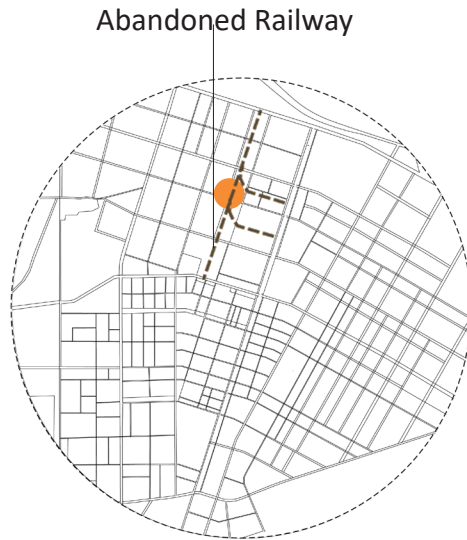


Figure 4.19: Site II Location by Shuyi Gao

The design exploration on this site aims to activate the abandoned urban space along the former railway line. First of all, the former workplace can be renovated as an art studio and cafe restaurant, serving as the initial attraction. Secondly, a range of eco-infrastructure will be implemented: green roofs, bio-swales and rain gardens. With this comprehensive ecological design approach, excessive rainwater will flow into the bio-swale that is renovated from the abandoned railway line. Thirdly, a series of urban furniture will also be inserted, in order to enhance the connection between indoor and outdoor space. In this design intervention, the focus on emerging identity determines the potential programs and design elements on site.

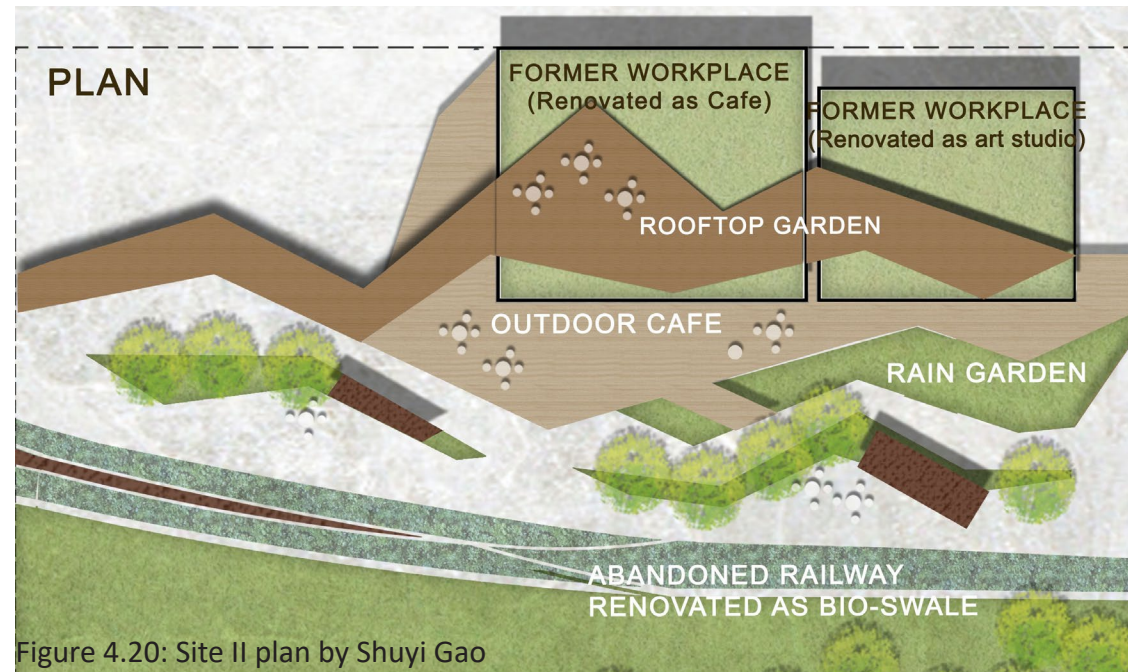


Figure 4.20: Site II plan by Shuyi Gao



Figure 4.21: Site II perspective by Shuyi Gao

## 4.5 Design Implication

### 4.5.3 Site III: Historical Residential Plazas as New Cultural Space



Figure 4.22: Site III Location by Shuyi Gao

This design intervention aims at providing opportunities for the current historical preservation project. All the historical workers' housing is preserved in this residential area, however, the courtyard space is currently underused, leaving it empty, and making the whole project a more abandoned feeling instead of the cultural center. Thus, the central historical building is proposed to be renovated as a community workshop, where exhibitions, community events, and classes could be conducted, encouraging a sense of belonging and creativity in people. A central rain garden will be functioning ecologically. The wooden walking deck throughout the site will weave up and down, functioning as seating, performance stage, pavement, or structure, cultivating a wide range of activities, and establishing the special place identity.

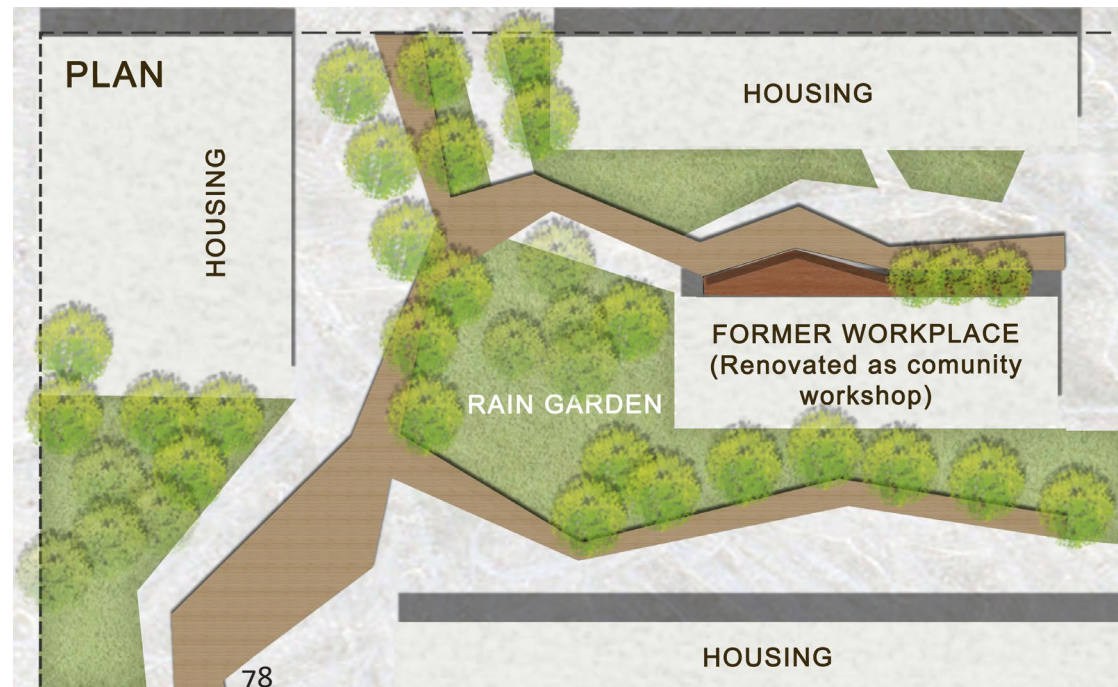


Figure 4.23: Site III plan by Shuyi Gao



Figure 4.24: Site III perspective by Shuyi Gao

沈阳第一机床厂



# 05 Reflection

## 5.1 The “Identity-Strategy-Renewal” Methodology

Starting from the strong place attachment of a post-industrial site, this thesis takes emerging urban identity as the central concept, proposing a more sustainable and successful urban renewal process in post-industrial Shenyang. A lot of effort has been put on the exploration of the “identity-strategy-renewal” methodology. Centered on the concept of urban identity, the determinants that result in the dynamic evolving and formation of urban identity, why urban identity matters, and how Landscape Architects should take a stance and provide creative design strategies in response to an emerging urban identity become the central questions being explored in this thesis.

With the outcome of urban renewal in the Tiexi District that was started over a decade ago, the research on merging urban identity becomes a tool in terms of evaluating the previous urban renewal and the criteria directing future renewal processes. Through the research and design exploration, it's easy to find that the dynamic interrelationship between emerging identity, design strategy and urban renewal informs a better

understanding of shifting local culture, social, and economic conditions. Facing a rapid urbanization process, urban renewal has become a common phenomenon in China in recent years, while the significance of original and emerging urban identities has not been recognized by a lot of cities; this might result in the loss of identity and long-term negative impact on local development. Especially with my twenty years of living experience and observations in Shenyang, I found this historical, cultural-rich city has already been losing its unique identity in the urban renewal process. The strong place attachment and the spirit shared by the people of Tiexi has always been a touching and inspiring motivation for me, reminding me that this unique identity must be preserved and represented in future development. The balance between economic development and environmental and cultural emphasize has always been a critical issue in a lot of developing countries, while cultural and historical resources can also be turned into new economies and facilitate local development if used appropriately. Overall, I hope this thesis will remind people of the significance of urban identity, and provide feasible methodology and suggestions that are beneficial for the development of my hometown Shenyang.

## 5.2 Further Exploration

The methodology being proposed in this thesis is mainly focused on how to revise the current urban environment of a certain area, and provide suggestions in initial steps. However, more detailed study should be conducted to:

- (1) Set up metrics for evaluation;
- (2) Set up feedback systems for better management of urban issues; and
- (3) Clarify the determinants that help to balance the investment and effort needed according to the development of a certain study area.

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