TRANSFORMING THE SUBURBAN VILLAGE TO AN AGRICULTURAL PARK IN WUHAN, CHINA

A CREATIVE PROJECT
SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
MASTER OF LANDSCAPE ARCHITECTURE
BY
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Chapter 1: Introduction

1.1 Project Background and Introduction

Over the past few decades, as China’s economy has soared, urban sprawl has been happening around almost all the fringes of Chinese cities. Urbanization has become the governments’ main focus in every city, town and village. As a result, rural residents increasingly flock to cities which in turn promote further expansion.

The direct result is the loss of villages and farmlands. Thousands of hectares of lands are being developed into the same styles of communities and business zones. Little by little, China’s rural traditions, such as agriculture and water culture, have been swallowed by urbanization. Urban citizens rarely have knowledge about traditional Chinese agriculture. Moreover, cities lack enough outdoor green spaces due to the urban population explosion. This creative project uses Wuhan (part of Jianghan Plain) as a target city to explore and discover landscape design strategies that can solve these problems.

The following section describes the background of Wuhan city. Wuhan, the provincial capital of Hubei province, is the most populous city in central China with 10,000,000 people (Figure 1-1). It is in the eastern portion of Jianghan Plain (Figure 1-2) and at the confluence of the Yangtze and Han Rivers. Wuhan city is composed of three towns: Hankou, Wuchang and Hanyang (Figure 1-3).
Figure 1-1: Location of Wuhan

Figure 1-2: Jianghan Plain
Wuhan’s climate is ideal for agriculture. Wuhan has abundant rainfall and sunshine. It is hot in summer with temperatures as high as 39°C (100°F). In winter, temperatures average around 8°C (46°F), but sometimes drop under 0°C (32°F) (Figure 1-4). Monthly rainfall varies from 50,000 mm in the winter to 220,000 mm in the summer during monsoon season (Figure 1-5).
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Figure 1-4: Annual average temperature in Wuhan

Figure 1-5: Wuhan Average Monthly Rainfall

1.2 Problem Statement

Using Wuhan as an example, this creative project proposes solutions to preserve and celebrate traditional agriculture and water culture, and also provide local residents
outdoor parkland. First, it explores the background of Jianghan Plain’s agriculture and water culture, and how urbanism has affected them. Second, it evaluates major examples of agricultural parks both in China and the US, and compares differences between them. Finally, based on the research, investigation and analysis, the project designs a new agricultural park model suitable for Wuhan’s suburbs.

The main question for the creative project is: How can designing an agricultural park preserve Jianghan Plain's traditional agriculture and water culture, and provide public green open spaces for Wuhan residents? Five sub-questions address these issues:

1. How did Jianghan Plain’s water culture background change from the past to today?
2. What is Chinese traditional agriculture background, and how did it change?
3. How did China’s agricultural tourism develop from ancient times to today?
4. What is the traditional pattern of public spaces in China?
5. How can this agricultural tradition be used in modern landscape in Chinese suburbs?

1.3 Significance of Problem

China is an agricultural country and has a long history of farming traditions. As the major breadbasket in China, Jianghan Plain has abundant water sources and fertile soil. However, after Chinese economic reform in the late 1970s, the traditional agriculture and water culture have been hard-hit due to expanding urbanism and city sprawl. Modern
agriculture is replacing traditional intensive methods. The overuse of chemical fertilizers and pesticides has caused pollution to farmlands, water bodies and human health.

The population of farmers is decreasing every year, and most of them become urban citizens. Urbanization is also pushing agriculture farther away from cities. Thus, China’s modern cities are facing the problems of high density population, less parkland, and less safe food access. For example, Wuhan’s average parkland is less than 10 square meters (107 sf) per person (Zhu), which is much lower compared to the average parkland in the US, which ranges from 182 sf in Chicago to 2,933 sf in Albuquerque (Figure 1-6).
When developing a new suburban area, China’s government usually wipes out everything and constructs new buildings and facilities. It might be the easiest and fastest way to accelerate modernization, but may disturb and destroy many other things, including memories, traditions and environment. This creative project explores the history of traditions, and uses an agricultural park to retain the vanishing heritage and recall citizens’ old memories. Visitors will understand that modernism should conserve history and culture, not only new buildings. The agricultural park will preserve and
demonstrate traditional agriculture and water culture. Meanwhile, it becomes Wuhan’s backyard where residents learn, play, taste and enjoy.

1.4 Methodology

The methodology of this creative project includes literature review, case study, and field study. The literature review is a background research of traditional Chinese agriculture, Jianghan Plain’s water culture, and traditional Chinese public spaces. The research boundary is based on the sub-questions mentioned in section 1.3. The case study is completed through reading, visiting, analyzing and comparing agricultural parks and suburban transition project. The case study summarizes several potential strategies for this creative project. Field study includes site visits, interviews, observations, inventory and analysis. These help one understand the site’s context and existing conditions in terms of circulation, housing conditions, hydrology, open spaces and surrounding environment.

1.5 Assumptions

- This project assumes that Wuhan government will support the proposed program preserving China’s traditional agriculture and Jianghan Plain’s water culture.
- This project assumes the government and local residents will allow relocating some residential houses on site.
1.6 Delimitations

- The project does not consider policies related to the Yangtze River floodplain.
- The project does not consider actual funding sources and engineering problems.
Chapter 2: Literature Review

2.1 Water Culture Background

2.1.1 Jianghan Plain History

In Pre-Qin Dynasty (BC 770- BC 221), Jianghan Plain and surrounding areas are primarily large lakes and swamps called Yunmeng Ze (云梦泽), which means a place in the clouds with much water. Located in lower topography, Yunmeng Ze (Figure 2-1) used to be several large lakes that connected countless water bodies because of the accumulation of the Yangtze River water. During that time, most of this area was primitive natural landscape and few people lived there.

Figure 2-1: Ancient Yumengze map
During Qin Dynasty (BC 200), the Yangtze River sediment divided Yunmeng Ze into two parts. The north part became swamps, while the south maintained the huge area of lakes. During the last 2,000 years, the area of Yunmeng Ze’s lakes kept decreasing. At the same time, more people established settlements there. Because of increasing Yangtze River sediment and human factors, more lakes were transformed to swamps and finally formed Yunmeng Ze’s new landform: plain-lake. Most small lakes disappeared, while other large lakes became separated.

Part of ancient Yunmeng Ze became the largest plain in central China: Jianghan Plain (Figure 2-2), which has been China’s major agriculture producing area for nearly a thousand years (Yunmengze_Baidubaike). Jianghan Plain’s landform is flat and low. Apart from edges, the average altitude is below 35 meters. In Wuhan, the altitude is even lower. Inside the plain, endless lakes, ponds and rivers constitute huge water networks. Most lakes are shallow with flat bottoms, ideal for both freshwater aquaculture and controlling rivers to mitigate flooding.

The altitude along the Yangtze and Han Rivers tends to be higher (from 8m to 38m). These areas have two typical topographic features. One is floodplain between riverbed and levee, having a higher elevation above 30 meters with mostly sandy loam soil. The other is a plain inside levee, 3-6 meters lower than the floodplain outside the levee, with mainly silt loam. These two types of soil are nutrient-rich for agriculture.

Jianghan Plain has a subtropical monsoon climate with abundant sunshine and mostly mild temperatures, which is suitable for growing cotton and paddy. Jianghan Plain
is also producing wheat, chestnuts, sesames, soybeans and vegetables. Because of the rich water resources, aquatic products are another distinctive type, including fish, shrimp, crab, shellfish, lotus root, water chestnut, reed and waterfowl.

Figure 2-2: Jianghan Plain

2.1.2 Jianghan Plain Water Culture

The history of Wuhan’s water culture follows throughout the region’s history. During ancient times, local people used lakes and rivers for four purposes:

1. Restoring Water
2. Fish farming and fishing protection
3. Water tourism
4. Agriculture (Yang, 22)

Ancient Wuhan was like floating on water because of numerous water bodies in and around the region. Even in the 1950s, nearly 300 lakes covered over 66,700 hectares (164,819 acres) in the city (Chen, “Historical”, 164). Daily contact with water gave
ancient inhabitants special feelings to water. Water seemed everything related to their life. It was an essential element for agriculture, eco-system for aquatic products, channel for transportation, place for entertaining, and landscape to enjoy.

However, as Wuhan city sprawled over the past decades, Natural areas including green spaces and water bodies have shrunk dramatically. Now Wuhan residents are accustomed to urban life and have few opportunities to experience nature and traditional water culture. Only some remote rural areas can offer such experiences. From the 1980s, Wuhan lakes have reduced by 228.9 square kilometers (56,562 acres) (Figure 2-3).

![Figure 2-3: Shrinking water area](image)

Today’s water culture in Wuhan contains four aspects: aquaculture, water activity, habitat, and water landscape. The reduction of water area has been affected in some of these functions.

1. Aquaculture
Aquaculture was the most significant part of Wuhan’s water culture. Most rural residents practice aquaculture as a living. Wherever there is a pond, opportunities for aquaculture exist. The products include aquatic plants (lotus root, lotus seed and water chestnut) and animals (crucian, catfish, blunt-snout bream, shrimp and soft-shelled turtle).

Figure 2-4: People collecting lotus roots

Lotus root is an aquatic plant that grows in shallow pond. Figure 2-4 shows how people collect and transfer lotus roots. Lotus root and seed are among the most traditional and common food in Jianghan Plain. Wuhan residents are also good at cooking these aquatic foods. Figure 2-5 shows different ways of cooking lotus root.
2. Water Activity

Wuhan residents enjoy water activities, with swimming, fishing and boating being most common. Every year, Wuhan government holds an international swimming competition called “Crossing the Yangtze River,” which celebrates Wuhan water culture and encourages more people to get involved in swimming (Figure 2-6).

Other activities include bamboo raft drifting, canoeing and kayaking. Moreover, new types of water activities are related to aquaculture, such as paddling around in a barrel to collect water chestnut (Figure 2-7).

Figure 2-5: Different ways to cook lotus root.

Figure 2-6: Swimming competition        Figure 2-7: Using barrels to collect water chestnut
3. Festival

China’s most significant water festival is Dragon Boat Festival (端午节) in memory of Quyuan, who is a famous ancient poet in Yumeng Ze more than 2,000 years ago. He made great contribution to ancient Chinese poetry. Facing the defeat of his country Chu, Quyuan did not want to surrender and drowned himself in the Miluo River in Yumeng Ze. For thousands of years, Chinese people have honored his noble spirit and made his death date a festival called Dragon Boat Festival. On that day, people hold dragon boat races and eat traditional Chinese rice pudding wrapped in lotus leave to honor Quyuan’s death in the Miluo River in Yumeng Ze (Figure 2-8).

Figure 2-8: Dragon boat race
4. Habitat

Countless lakes and ponds have made Wuhan an ideal habitat for animals, especially migratory birds like mallards, egrets, white storks and cormorants. Rolling topography and shallow water created many islands which were called bird islands because of the many species living there. When birds flew over, they could cover half the sky. Wuhan was also paradise for aquatic animals. Yangtze finless porpoise, which is almost extinct, was plentiful in the past. Other animals like owls, geese, rabbits and fireflies were also common. However, the reduction of water bodies and encroaching human settlements threaten habitats. Wuhan is almost no longer a good habitat for aquatic animals and birds.

5. Water Landscape

Wuhan has various kinds of water landscape. The scenery of a peaceful lotus lake
(Figure 2-10) is different from the surging the Yangtze River. During ancient times, many poets and painters came to Wuhan and left poems and paintings which remained famous through the ages. Figure 2-11 shows one example of an ancient painting of the Yangtze River. However, the loss of water areas has reduced the beauty of water landscapes in Wuhan. Wuhan residents now have few opportunities to appreciate such views.

Figure 2-10: Lotus Lake (by author)

Figure 2-11: Ancient paintings of Wuhan
2.1.3 Conclusion

As such a vital part of Wuhan tradition, water culture should be preserved and celebrated by more residents. If no one pays attention to it, it might be a dead culture only presented in libraries and museums in the future. For people to truly appreciate the water culture, it has to remain a living part of the community.

The design will consider the following strategies to preserve Wuhan’s water culture:

- Preserve water culture
- Restore habitat
- Preserve traditional aquaculture

2.2 China’s Agricultural Background

The history of China’s agriculture is over thousands of years old. Since 7500 BC, agricultural development has been a key role to support China’s growing population. “Today Chinese agriculture sustains 22 percent of the world's population, with less than 8 percent of the world's arable land” (Ed. Karen). With traditional philosophy and innovation in agricultural techniques, China has been able to support its growing population.

2.2.1 Agricultural Policy in China
During ancient times, China’s agricultural policy was different from today. In late imperial times, the situation was different from north to south. In the north, agricultural land was owned by people who worked on it. However, in the south, land was owned by landlords who hired peasants to work for them. “Peasant who worked the land either paid for use of the land with a share of their harvest, a fixed rent in crops or a fixed rent in cash” (Traditional Chinese Agriculture and Farming).

From the establishment of Republic of China (1949) to China’s economic reform (late 1970s), agricultural policies shifted from centralized planning and collection to household-based farming.

Now China’s agricultural policy is based on household farming. Each household contracts with the government to manage a certain amount of land (usually 0.2-0.5 acres) for one to three years. Until 2006, households also had the responsibility to pay certain taxes to the state. Household-based farming has given farmers freedom to choose their own economic decisions like the allocation of production inputs or the disposal of surplus outputs.

2.2.2 Philosophy of China’s Traditional Agriculture

For thousands of years, China’s traditional ideology—heaven (climate and season), earth (terrain), and human (human factor)—has been perfectly combined with farming. This ideology was based on a famous treatise—Zhou Yi. This book told people to “respect for Dao-Li (natural relationship with the universe, geography and climate), Shi-Li
(planning and management of human activities) and Qing-Li (ecological ethics, psychology, motives and values towards the environment)” (Li, 23). The relationship between human and nature should be in harmony, so each can receive its benefits.

Under this philosophy, China’s farmers learned how to integrate nature’s benefits and avoid the negatives (such as bad weather). It is important to cooperate with nature, such as always growing suitable crops in suitable climate and geography to improve crop yields. Solar term is the agricultural calendar that directs farming. Through practicing this agricultural philosophy, integrated farming system emerged and has been improved over thousands of years.

Solar Term

China’s agriculture is based on a calendar of twenty-four solar terms, which dates back to nearly 2500 years ago (Figure 2-12). They represent China’s traditional philosophy of coordinating with nature. “A solar term is any of 24 points in traditional East Asian lunisolar calendars that matches a particular astronomical event or signifies some natural phenomenon.” (Wikipedia, Solar term)

Guiding farm work, solar term indicates what the climate will be like during a specific period and what farming work should be done during that period. Each solar term is a period of about half month. Every season has six solar terms, which represent four characteristics of the seasons. Spring has abundant rainfall, so it is suitable for spring ploughing. As summer begins, weather grows hotter, so it is the time to harvest grains
like barley and wheat, and the busiest time to seed millet. Fall is cool and time for harvesting. As temperatures drop from fall to winter, it is good to have a rest. For example, “grain rain” means that during this period, rain can support growing grain, so it is the best time to sow seeds. “Grain in ear” means that it is the deadline for sowing activities (Figure 2-13).

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<td>Start of summer</td>
<td>立夏</td>
<td>05/06</td>
</tr>
<tr>
<td>60°</td>
<td>Grain full</td>
<td>小满</td>
<td>05/21</td>
</tr>
<tr>
<td>75°</td>
<td>Grain in ear</td>
<td>芒种</td>
<td>06/06</td>
</tr>
<tr>
<td>90°</td>
<td>Summer solstice</td>
<td>夏至</td>
<td>06/21</td>
</tr>
<tr>
<td>105°</td>
<td>Minor heat</td>
<td>小暑</td>
<td>07/07</td>
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<tr>
<td>120°</td>
<td>Major heat</td>
<td>大暑</td>
<td>07/23</td>
</tr>
<tr>
<td>135°</td>
<td>Start of autumn</td>
<td>立秋</td>
<td>08/08</td>
</tr>
<tr>
<td>150°</td>
<td>Limit of heat</td>
<td>处暑</td>
<td>08/23</td>
</tr>
<tr>
<td>165°</td>
<td>White dew</td>
<td>白露</td>
<td>09/08</td>
</tr>
<tr>
<td>180°</td>
<td>Autumnal equinox</td>
<td>秋分</td>
<td>09/23</td>
</tr>
<tr>
<td>195°</td>
<td>Cold dew</td>
<td>寒露</td>
<td>10/08</td>
</tr>
<tr>
<td>210°</td>
<td>Frost descent</td>
<td>霜降</td>
<td>10/23</td>
</tr>
<tr>
<td>225°</td>
<td>Start of winter</td>
<td>立冬</td>
<td>11/07</td>
</tr>
<tr>
<td>240°</td>
<td>Minor snow</td>
<td>小雪</td>
<td>11/22</td>
</tr>
<tr>
<td>255°</td>
<td>Major snow</td>
<td>大雪</td>
<td>12/07</td>
</tr>
<tr>
<td>270°</td>
<td>Winter solstice</td>
<td>冬至</td>
<td>12/22</td>
</tr>
<tr>
<td>285°</td>
<td>Minor cold</td>
<td>小寒</td>
<td>01/06</td>
</tr>
<tr>
<td>300°</td>
<td>Major cold</td>
<td>大寒</td>
<td>01/20</td>
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Figure 2-12: Twenty-four solar terms
Integrated Farming System (IFS)

An integrated farming system is a comprehensive agro-ecosystem carefully designed to combine farming, forestry, herding and other agricultural types. According to the All-China Conference of Ecological Agriculture in 1987, IFS was defined as “multiple agricultural production and development … guided, organized and managed in the light of ecological-economic principles using the systems engineering approach” (Li, 13).

In Jianghan Plain, three major farming systems have been used: mulberry dyke-fishpond system, paddy rice-fish system, and lotus root-fish system.

1. Mulberry dyke-fishpond System:
This system combines growing mulberry growing raising silkworm. Figure 2-14 shows how the system circulates. This system contains three main elements: pond (aquaculture), dyke (forestry or horticulture) and animal husbandry (silk production) (Li, 292). Mulberry trees offer fruit for humans and leaves for silkworms. Silkworms create excrement and chrysalis which drop into the fish pond. Inorganic nutrients in the pond are foods for photoplankton and zooplankton, which are finally foods for fish.

Figure 2-14: Mulberry dyke-fishpond system
2. Paddy rice-fish System

The history of this system dates back to the Three Kingdoms (around AD 220). For 2000 years, nearly all the rice paddy fields in southern China also raise carp in the fields. This is an endless food chain model (Figure 2-15). The relationship between rice paddy and carp is mutual dependence. Carp provides natural fertilizer and eat weeds around paddy to help it grow healthy (Xia). At the same time, paddy attracts insects, which are food for carp (Baidubaike, Paddy Rice-fish System).

Figure 2-15: Paddy rice-fish system
3. Lotus root-fish System

This system has the similar theory as paddy rice-fish system. During the growing period, many weeds and planktons may disturb lotus roots. Introducing fish into a lotus pond can help clean the weeds and plankton. Meanwhile, fish waste is good fertilizer for lotus roots (Yu).

Furthermore, there is another way to implement this system. Instead of keeping fish and lotus roots together, this method raises them separately (Figure 2-16). Two pipes are added between a fish pond and a lotus pond, so that water can circulate between the two. A lotus pond is like an artificial wetland to clean water from the fish pond and bring back the plankton as food for fish.

Figure 2-16: Lotus root-fish system

2.2.3 Agricultural Technology

Because of land shortage and increasing population, agriculture in China must
improve yields in every inch of farmland. The key to high yields is intensive cultivation. Unlike extensive agriculture in North America, intensive cultivation uses massive labor and material resources to maximize output. This means that farmers do most of the work. Moreover, in southern China, to improve efficiency, three crops are planted per year—two of rice and one of legumes. When carrots’ prices go down, they are used to fatten pigs rather than sold at market. Overall, every resource must be counted before being used. The following part is a discussion of Jianghan Plain’s traditional farming technology in terms of farming tools, irrigation, levee-surrounded field and fertilizer.

1. Farming Tools

Since China’s agriculture pattern is intensive, most farming work is done by labor and farming tools. In ancient China, farmers in the south have traditionally used iron plow and water buffalo to till fields, and donkeys to carry goods (Figure 2-17). Today, plows and buffalo are still used; however, donkeys have been replaced by auto vehicles (e.g. tractors, trucks, etc.)

Figure 2-17: Ancient farmers using iron plow and water buffalo
2. Irrigation

Most irrigation uses canal systems in southern China to harness abundant water resources. The source water comes from rivers, lakes, ponds and reservoirs. Along rivers and lakes, dams have been built to restore and supply water.

Through history, various pumps have been used. In the past, manual water wheels were used to lift water from wells, rivers, canals and ponds to farmlands (Traditional Chinese Agriculture and Farming). The water wheels were controlled by farmers or livestock like buffalo (Figure 2-18). Now most farmers use electric pumps since they are inexpensive. They save labors but are not environmentally friendly.

![Figure 2-18: Manual water wheels](image)

3. Levee-surrounded Field

Levee-surrounded field is a special farming type in Jianghan Plain, featuring low-lying fields surrounded by levees along rivers and lakes. The history of levee-surrounded field
dates back to Han Dynasty (BC 202-AD 220), when people started filling in lakes to create farmlands (Figure 2-19). The canal systems, inside levee-surrounded fields control irrigation (Baidubaike, Levee-surrounded field). The gates on levees connect inside fields and outside rivers or lakes. The gates are closed for defending against floods, and opened during drought (Figure 2-20).

Figure 2-19: Levee-surrounded field drawn in ancient times
4. Fertilizer

In China, human and livestock excrement is not waste but natural fertilizer, which is much better than chemical alternatives. “Outhouses in rural China are often placed near the pig sties so waste can be collected from both sources and used for fertilizer. China has a long history of using human excrement—‘night soil’---as fertilizer. The morning distribution of night soil is common sight throughout China.” (Traditional Chinese Agriculture and Farming) Today, though most farmers use chemical fertilizers because they are easy and fast, some farmers are still using traditional ways.

2.2.4 Modern Agriculture Situation

After the new nation was founded in 1949, traditional Chinese agriculture has been
replaced by modern agriculture little by little. To increase output, government encourages industrial agriculture, which is mechanical, chemical and electric. Human and livestock labors have been replaced by machines. Chemical fertilizers have taken over natural ones. Canal systems have been polluted and abandoned.

The benefits of industrial agriculture include the increase in farming output. For example, the output during 1982 to 1986 grew 2.3 times of that during 1909 to 1913. However, it has brought problems including the rapid energy consumption, soil and water pollution caused by chemical fertilizers, water loss and soil erosion, and air pollution (Zhao). All these problems, plus the decrease in population of farmers, lead to the less access of safe food. Increasing urban residents have the desire to own their own vegetable gardens. Due to the lack of farmland in cities, some urban residents grow their own vegetables on balconies or roofs (Figure 2-21). However, these cannot meet people’s requirements for economic and healthy food. Some communities allow for allotment gardens (like community gardens or kitchen gardens), which are small patches of vegetable lands. Though this is not popular in China, it is likely to be more welcomed by urban citizens.
2.2.5 Farmers' Market

In a narrow sense, Farmers’ market (or free market) “refers to designated areas in the city where farmers are allowed to sell their produce directly to urban consumers. But in a broader sense "free market", refers to the privatization of the growing and distribution system that emerged as part of the government's decontrol of the agricultural sector beginning in 1985" (Deamer).

Farmers' market (or free market) is an important economic as well as cultural part in today’s China (Figure 2-22). Chinese urban residents often have daily grocery shopping in nearby farmers' market, which provides the freshest vegetable, meat and poultry.
Unlike vegetables sold in supermarket that might have been in refrigerators for many days, farmers’ market offer vegetables that harvested within the past 24 hours. Thus, more residents tend to do grocery shopping in farmers’ market. Moreover, Chinese people get used to be in farmers’ market. It has become a social place that enhances residents' communications, and increases feeling of community.

![Figure 2-22: Typical farmers’ market in Wuhan](image)

2.3 Agricultural Tourism in China

Chinese people always have the dream of idyllic life (farm life). No matter in ancient times or today, most people yearn for nature beauty and want to run away from busy urban life. The countryside has become an ideal place to escape for thousands of years.

2.3.1 Ancient Agricultural Tourism

In ancient times, agricultural or rural tourism was always mentioned in poems and
songs. Pastoral poetry was an important genre in Chinese ancient poems. These poems or songs described countryside landscapes and life of farmers and fishermen, which presented fresh flavor of the earth and peaceful sense of life. Moreover, ancient paintings also showed the willingness to live in countryside. For example, Figure 2-23 showed a person was enjoying fishing in the river between mountains.

Ancient agricultural tourism contained experience of rural life like fishing, outing and tasting rural food. However, the most significant part was not what people did, but the experience in their mental worlds. Agricultural tourism was a way to get them grounded and purified. That means spirit was the core part of rural tourism.

Figure 2-23: Painting described idyllic life in Ming Dynasty (AD1368—1644)
2.3.1 Modern Agricultural Tourism

Modern agriculture tourism started in late 1980s after Chinese economic reform. The modern Chinese agricultural park is called Nong Jia Le (NJL for short), which means having fun in rural areas. Most of NJLs are one-day tours or weekend tours. Though NJL is a newly emerging tourism type in China, it has developed quickly. There are over 150,000 NJLs in China now (Xiao). Most of them are simple and small scale, and run by farmers.

The NJL activities include the following:

1. Tasting rural food
   Tasting is the most important one because rural food represents natural, fresh, safe, delicious and rural characters in China (Figure 2-24).

2. Doing farm work
   This is another important reason that attracts visitors. For urban residents, farm works are special activities that are educational and entertaining.

3. Living in rural house
   Some people also like living and in NJLs because of the special rural characters (Figure 2-25).

4. Purchasing rural products
   The relatively cheaper and fresher rural products, especially foods, also attract many urban residents to countryside.
5. Experiencing rural sceneries

The beauty of countryside, special local characteristics, cultural landscape and history are also other reasons that attract urban visitors.

Figure 2-24: Having rural food in NJL

Figure 2-25: NJL accommodation with characters in Cave-house

Though modern Chinese agricultural parks have existed for nearly thirty years, they are still in the developing stage. Most NJLs are without any designs or programs because they are run by farmers, who are good at agriculture but lack knowledge about
parks. Some farmers only chase profits which results in following problems:

1. No characters

   Most NJLs have no characters or have the same styles, which does not represent local characteristics

2. Pseudo-farms

   Some NJLs are only rural restaurants that provide spaces for dining and playing board games.

3. Less accessible

   Since most NJLs are in areas without public transportation, only those with motor vehicles can access. Some NJLs are lack of way findings which are hard to find.

4. Lack of design

   Most NJLs lack professional design. For example, some are not equipped with suitable parking lots and circulation.

5. Lack of traditional NJL spirit

   Unlike ancient agricultural tour, visitors can hardly get pure rural feelings today. They want to be involved in farm life and experience being grounded, but NJLs cannot provide such environment.

This creative project considers the traditional spirit of a rural agricultural tour, and combines it with today’s visitors’ needs. The purpose is to design an accessible agricultural park with an appropriate program.
2.4 Public Space in China

2.4.1 History of Chinese Public Space

The feudal system lasted in China for thousands of years. Since the whole country was controlled by empire and nobilities, rare facilities (such as garden or plaza) were public for people. Gardens and plazas were private, and only for upper class. Even in such situation, public spaces still existed in ancient China.

Public space appeared when people’s settlements emerged. It had different characteristics in different historical periods and places. During 4,600 BC to 4,000 BC, China’s public space was based on a clan village. Each clan village had a large public space surrounded by houses. Before Song Dynasty (Around 960 AD), public space in cities was still based on residential areas. Two adjacent residential areas did not have connected public spaces, so they were isolated. From Song Dynasty, public spaces expanded from inside residential areas to outside streets, which became the major public spaces (Zhou). In rural areas, a typical public space always contained three elements: an old tree, a well and some villagers (Douban) (Figure 2-26).
2.4.2 Today’s Chinese Public Space

After China transformed to a more modern society in 20th century, numbers of public space increased fast, including civic plazas, pedestrian shopping streets, leisure squares and residential squares. These squares and plazas have provided activity spaces for Taichi and social dance, and green spaces for refreshment.

However, most of these public spaces have the following problems (Zheng).

1. Inappropriate scale

Some urban plazas are too large which wastes materials and also lacks characteristics. Since China has a large population with insufficient land, public space should be designed according to city scale and number of migrants.

2. Insufficient green space

Most plazas are with too much pavement but less green space (Figure 2-27).
40

Large areas of pavement may reduce use of plazas because it is hot in summer and icy in winter.

Figure 2-27: Large areas of pavement in a Xi'an city square

3. Fewer activity spaces

The designs of most public spaces only pay attention to plan forms rather than spaces, which leads to single space in many plazas. Thus, urban residents have less accessibility to different activities.
Chapter 3: Case Study

3.1 Living History Museum

“Living history in a museum setting began with the formation of open air museums, an approach to collecting, exhibiting and interpreting that dates back to at least 1891 when Skansen opened in Stockholm, Sweden” (ALHFAM). A living museum uses all possible elements, including culture and natural conditions, to recreate a historical period. Such a museum presents buildings, roads and other exhibits in a historical style. Some of them are replicas, and some are historical relics. Staff in a living museum often wear period costumes and act as people living long ago. Under such atmosphere, visitors use their senses to see, listen, touch, taste and feel history.

Living history museums encourage interaction between visitors and exhibits. Unlike common museums, history in living museums taught in a vivid way by encouraging interactions rather than boring preaching or display. In this way, visitors are willing to get involved, have more fun, and gain knowledge.

Conner Prairie Interactive History Park

Fishers, Indiana, US

Conner Prairie Interactive History Park is a living history museum park in Fishers, IN, USA. Similar to the creative project site, Conner Prairie is at the northern edge of a metropolitan area (Indianapolis). The park is well-known for recreating part of 19th-century life in Indiana and preserving William Conner home, which was built in 1823
and is listed on the National Register of Historic Places. The park is also an educational and entertaining place where visitors can learn history by engaging first-hand with activities.

The park is divided into several sections (Figure 3-1) according to the living timeline and the existing site conditions: 1863 Civil War Journey, Nature Walk, 1836 Prairie Town, Conner Homestead, Lenape Indian Camp and Balloon Voyage.

Figure 3-1: Plan of Conner Prairie Interactive History Park

The whole journey starts at the Welcome Center, which includes an entrance lobby,
ticket sales counter and an educational hall. The educational hall offers several interesting games which help visitors understand the historical technology (such as windmills) and lifestyles.

In the 1863 Civil War Journey and 1836 Prairie Town, visitors can experience the life years ago in Indiana by walking through old buildings like the field hospital and outfitter's cart, joining period activities and games performed by staffs in period costumes (Figure 3-3). This experience gives visitors a clear understanding of traditional lifestyles in cooking, pottery-making, wood working, blacksmithing (Figure 3-2), etc. Visitors can also learn Indiana’s history through their own experience and involvement.

At the Conner Homestead, visitors can take a guided tour of the house to discover the story of William Conner and how he changed Indiana’s history. Apart from this, visitors can get close to animals in pastures and barns (Figure 3-2).

The 1859 Balloon Voyage (Figure 3-3) may be the most popular attraction in the whole park. Recreating the launch site of John Wise’s balloon from Lafayette, Indiana, almost 150 years ago, this balloon ride offers visitors a totally different and fresh experience to learn history.
Apart from these permanent attractions, Conner Prairie Park also offers other semi-regular events, such as monthly program "Taste the Past," an autumn "Headless Horseman ride" in the autumn, field trips and nature classes.
As a long-established park example in the US, Conner Prairie makes full use of the existing landscape and local history. The combination of these two elements helps achieve the park’s goal—education and preservation. They are complementary because to preserve is to learn, and to learn is to preserve.

The park’s concept is expressed through activities. From personal involvement in activities, people learn history, get close to nature, and also have fun. They can see natural scenery, eat local apples, smell fragrant flowers, hear moo and baa, and touch plants and animals. As a vital and attractive part, activities are closely associated with its theme—history and nature. This may be the most important idea that China’s parks can learn. Though now China’s parks tend to get visitors involved, they still lack interactions. Most parks only allow for visiting or watching performance.

The design of Conner Prairie Park is in traditional style, which is the best way to present history. From building and country roads, to vehicles and costumed interpreters, even the pasture fences—all reveal a sense of history. When designing such a park, it is important to express features, since they are like the language the designer chooses to communicate with visitors. This can determine the main keynote for the whole design.

Balloon Voyage is a special promotion for this park. Since the balloon can fly high in the air, people can see it even far away. It becomes a sign which attracts visitors to the park. The area around the balloon is also designed into a circle pavilion with a café and some seating area. As a result, the balloon becomes a focal point.
### 3.2 Taiwan Leisure Farm

#### 3.2.1 Taiwan Leisure Farm History and Development

In Taiwan, agriculture experienced hard times during the 1970s because of rapidly developing industry and commerce. However, it survived and has transformed successfully from traditional farms to leisure farms during the last 30 years. Now leisure farms are one of the most popular and attractive types of destination both for Taiwan residents and tourists.

The history of Taiwan leisure farms has experienced three periods. The first is the emerging period from 1971 to 1989 when traditional agriculture was struggling. During that time, government and farmers realized the difficult situation of local agriculture and began to combine agriculture with tourism. This new industry remained primarily for sightseeing. Farms rarely offered experiences to get visitors involved.

The second period (1989-1994) witnessed rapid development in leisure farms. The government drew up a series of regulations to ensure the healthy development of leisure farms, defining the concept as “taking advantage of agricultural products, business activities, natural resources and social resources to enhance people’s recreation and health as well as preserving agriculture and promoting the development of rural areas.” (Guo) The regulation also established some basic requirements for leisure farms, such as areas should be more than 50 hectares (123 acres) and should maintain agricultural environment as distinct from general recreation.

However, soon after these regulations came out, the development of leisure farms
encountered a bottleneck phase. The main reason was that some regulations were so rigid that they could not meet the development needs. Furthermore, some farms developed tourism under the guise of leisure farm. They deviated from the intention of leisure agriculture by chasing more immediate profits. These pseudo-farms resulted in environmental destruction and public misunderstanding of leisure farms. Responding to these problems, the government amended the regulations. After 1995, leisure farms saw a healthier and more rapid development. As of 2014, the total number of registered leisure farms is more than 300, which is a significant number considering that the area of Taiwan is just 13,973 sq mi. During these periods, Western countries’ and Japan’s leisure farms gave Taiwan much inspirations.

Leisure farms have developed various types, including farm, pasture, forest, fishing ground, orchard, tea garden, flower garden, kitchen garden, allotment and educational farm. Small farms might only contain one or two of the above types. Other larger farms might offer several different types of experience.

Leisure farm activities are also richer than just sightseeing. Visitors can have different experiences according to different types of leisure farms. For example, in tea gardens, visitors can get involved in picking and making their own tea. They can taste tea, appreciate and learn tea rituals as well. Some leisure farms offer accommodations with rural character which become popular among urban residents.

Throughout the history of leisure farms, Taiwan has experienced similar socio-economic transitions as Mainland China is having now:
1. Shrinking agricultural industry and structural changes because of other industries development
2. Growing demand for leisure travel due to the rapid economic development and improved income
3. Booming urban population and pollution from urban sprawl
4. Deteriorating agro-ecological environment
5. Increasing vacation time
6. Improving traffic condition

Just as Taiwan’s growing upper-middle class has contributed to the development of leisure farms, Mainland China’s socio-economic conditions could lead to similar agricultural facilities.

The development of Taiwan’s leisure farms has achieved four main goals:

1. To transform and transfer agriculture structure to tertiary industry
2. To preserve local traditional agriculture and agro-ecological environment
3. To fulfill urban citizens’ demand to be close to nature
4. To increase rural job opportunities and incomes

Sharing the same background, Taiwan leisure farms may inspire Mainland China’s agriculture.

3.2.2 Fairy Lake Leisure Farm
Tainan County, Taiwan
Located near Chianan Plain, Tainan County, Fairy Lake Leisure Farm occupies land a farming family has cultivated for generations. Before it became a leisure farm, it used to be normal terrace fields producing longan, a fruit especially popular in southern China. The farm center is atop a hill which covers about 52 hectares (128 acres). The hill is named “fairy lake” by local people because it looks like a fairyland surrounded by clouds in the morning and after rain (Figure 3-4). With this wonderful natural phenomenon, the hill itself is a marvelous landscape.

![Fairy Lake appearing above the clouds](image)

**Figure 3-4: Fairy Lake appearing above the clouds**

The park is divided into three zones: agricultural, leisure and ecological. The agricultural zone is the major production and experience area (Figure 3-5). The leisure zone contains trails, accommodations, outdoor café, visitor center and other amenities.
The ecological zone mainly includes fruit gardens, pigsty and forest trails.

Fairy Lake Leisure Farm features terrace fields planting four-season agricultural products, including fruits, coffee beans and natural wild vegetables, which are food sources for the farm visitors.

The farm is particularly famous for its longan culture. The traditional techniques of producing longan are well preserved. Today the family farm owners are still using traditional methods inherited from ancestors for producing dried longan, longan tea and longan honey. This way of producing longan may take longer time, but the products can be more nutritious. Thanks to their efforts, more people have the opportunity to know or even participate the longan production.
The farm also offers a “two-day farmer” experience, which features doing farm work (Figure 3-6), appreciating rural beauty, hiking on natural hill, tasting local foods (Figure 3-7) and living in local home (Figure 3-8). Visitors enjoy escaping from urban life and being weekend farmers.

Figure 3-6: Involvement in farm work  Figure 3-7: Local food

Figure 3-8: Local accommodations

Among all these experiences, local foods and accommodations can be the most representative features of Taiwan leisure farms. Almost every farm has its own featured foods and accommodations according to the landform, culture or history. Taking Fairy
Lake Leisure Farm as an example, apart from food sources on farm, other food sources are also locally produced (Figure 3-9), within half an hour of the table. Fresh foods can be picked by visitors themselves and cooked in special local cuisine by farm owners. As for accommodations, visitors can live in local cabins which are built on the hillside and surrounded by coffee and longan trees. In the morning, they can be woken by the glorious sunrise and coffee aroma from outdoor café, pleasure they cannot easily experienced in metropolis.

The key word for Taiwan leisure farms’ success is “local.” Regardless of food, history, culture, accommodation or environment, they reflect and promote local development. However, this is what today Mainland China lacks of. Some projects in Mainland China always want to learn from oversea examples regardless of erasing their own history and culture. In their minds, this is the fastest way to keep up with modernism.
China has a rich history and culture of 5000 years, but most of them have been abandoned.

3.3 Nanhu New Country Village
Jiaxing, Zhejiang, China

3.3.1 Background

Located in the suburb of Jiaxing, Zhejiang, China, Nanhu New Country Village is a transformation of a suburb. More comprehensive than other agricultural parks, it includes community housing, agriculture systems, canal systems, wetlands and parklands. This was done by SOM, SWA and AECOM and will be constructed in a few years. The total area of the project is about 1,100 hectares (2,718 acres), of which 600 hectares (1,482 acres) are farmlands. This project’s intent is keeping Nanhu’s original agricultural character while transforming the site a compact, walkable village within the city of Jiaxing (Figure 3-10).

By Chinese standards, Jiaxing is a small city with three million people, but it is between three high-density population cities (Shanghai, Hangzhou and Suzhou). The high-speed railway from Jiaxing to Shanghai and Hangzhou goes by every twenty minutes, bringing more opportunities to the city. Nanhu is on the southeast edge of this railroad. Though part of Jiaxing city, it is more like a rural area. It was a suburb ten years ago but is facing the problems of shifting from suburb to city.
The good part of Nanhu is that it has kept the rural character. It originally had canals and small farms. The fertile land and abundant water make Nanhu a good place for farmland. Also, the location gives it potential to be a backyard to support surrounding metropolitan area.

However, Nanhu is also facing problems which are common in China. After
analyzing China’s existing urban and rural development conditions and Nanhu’s context, the designers identified four developing challenges:

“1. Farmlands
Currently China receives very low agricultural outputs from high labor inputs.

2. Riparian Network
Runoff from excessive fertilizer use, industrial waste and dumping of raw sewage has degraded China’s rivers and canals.

3. Village
Buildings in housing developments are often tightly packed in monotonous rows with little opportunity for light and air

4. Parklands
Chinese cities are so large and dense that access to quality open space is a challenge.” (SOM)

Addressing these issues, the three companies designed a modern agricultural village for Nanhu. This design tried to combine both local rural and urban characters.

3.3.2 Design

The three main focusing areas are reforming agriculture, improving water system and providing parklands.

In the reformation of agriculture, both physical and social components are considered. The original large farmlands are transformed into clustered residential with
parklands and wetlands. New technology will be brought in to make the farm work more efficiently. The combination of both creates an organic farm which has large-scale production. Meanwhile, 98 family farms are kept as the distinctive agricultural feature of Nanhu. Also, eco-tourist farms are built as recreational agriculture to attract more visitors and business opportunities. Nanhu will become a new destination for agriculture tourism in the surrounding areas. In addition to these farms, garden parklands provide more space for community farms, integrating rural and urban lifestyle (Figure 3-12) (SWA).

Figure 3-12: Reformation of agriculture

Water pollution will be remediated by improving the existing canal systems and
building constructed wetlands. Before polluted canal water enters site, it flows across wetlands to be purified. By removing canal dead ends and adding new links, stagnant water becomes flowing (Figure 3-13). Apart from polluted water, on-site stormwater is also collected and treated. Some stormwater treatments are visible and combined with landscape in parklands to can be educational and celebrated.

Three main open spaces—Garden Parkland, Northlake Parkland and Ecology Parkland—are inserted in the residential areas with different features and activities (Figure 3-14). So residents and visitors can enjoy various experiences in the open green spaces, such as boating, jogging, bird watching and farmer’s market.
Except for the three focusing areas, village life is also changing. Farmlands surround residences within walkable or bikable distance for all farmers (Figure 3-15). The canal edge is designed in Jiaxing traditional style. Street trees, which are rarely used in China’s rural areas, are designed in tight north-south lines to partition space and present a backdrop to the agricultural setting(SWA).
Though not yet finished, Nanhu New Country Village will set a good example because the problems it is handling are also happening in most parts of China. This country is undergoing an unprecedented reformation, and most rural areas are facing difficult situations. As villages become cities, farmers lose their farmlands and survival sources. Cities also have less food supports.

This project has solved problems by combining both characters of city and countryside to create a new kind of community. The urban life has more job opportunities but less open or personal space, while rural life has sufficient open space but low incomes and fewer opportunities.

This community is taking and urban form communities with organized blocks and public spaces, so residents enjoy a sense of community. At the same time, the
agricultural heritage is kept by different types of farms. The mixed-use of community makes it possible for residents to be urban citizens as well as farmers. More jobs are created because of the new types of farms. Also, those who are not farmers can secure jobs in surrounding big cities by taking the high-speed trains.

3.4 Conclusion

These three case studies demonstrate multiple strategies in different geographical areas based on different social backgrounds.

Living history museums have developed a new way to exhibit history, where visitors feel like first-person participants rather than third-person observers. Such a special simulated environment can encourage visitors to use all of their physical senses and have better memories of what they have experienced. Though living history museums are popular in western countries, it is a new type of museum for China. It may not be suitable for China because of different national conditions, but it is still a good precedent for this creative project showing different ways of programming activities and demonstrating history.

Taiwan leisure farms which have developed since 1970s are the potential future models for Mainland China since Taiwan shared similar socio-economic transitions. Leisure farms become backyards of the metropolis and fulfill urban residents’ rural life dreams. The key word for Taiwan leisure farms’ success is “local.” Regardless of food, history, culture, accommodations or environment, they reflect and promote local
development. They borrowed overseas experiences and developed them into their own styles. However, this is what Mainland China lacks today. Some projects in Mainland China always want to learn from overseas examples, though it erased their own history and culture. In their minds, this is the fastest way to keep up with modernism. China has a rich history and culture of 5000 years, but most of it has been abandoned.

Nanhu New Country Village is a project with typical Chinese character. This proposed project intends to transform China’s rural areas into cultural, environmental, economic and social aspects. Though it is a comprehensive project with a larger scale than this creative project, some strategies are still applicable. The way they addressed traditional agriculture, water systems, and open space show good promise.

These case studies suggest several potential strategies:

Enhance interaction with visitors

1. Provide various activities to involve visitors, such as U-pick, seasonal activities and Farmer’s Market.
2. Recreate historical scenes to help visitors feel as first-person participants.

Develop local character according to local culture, context, history and art

1. Relate activities to local character.
2. Design the agricultural park based on the site’s landform
3. Maintain rural character

Provide educational programs

1. Offer guided tours
2. Design outdoor classrooms

Use sustainable strategies

1. Improve water systems
2. Apply organic farms
3. Use clean energy
4.1 Regional and Site Introduction

4.1.1 History of Wuhan

Being part of Jianghan Plain, Wuhan has received rich water resources and foods from the Yangtze and Han Rivers, but also commercial opportunities and splendid water culture. The history of Wuhan dates back 5,000 years, when settlements first appeared. As Jianghan Plain gradually replaced Yunmeng Ze, a growing number of immigrants came for farming and business. With population growth, during the Tang Dynasty (AD 618-AD 907), the separated villages along the Yangtze and Han Rivers eventually became three prosperous towns: Hanyang, Wuchang and Hankou. Because of the abundant agricultural products and convenient transportation, the three towns became one of the commercial and transportation centers in southern China for centuries, finally forming the city of Wuhan in 1927 (Figure 4-1).
4.1.2 Modern Wuhan

Known as the leading transportation hub of the nine provinces, modern Wuhan has numerous railways, roads and expressways passing through the region. Shipping is also a major transportation mode. The total water network in Wuhan covers about 2,000 square kilometers (500,000 acres), nearly a quarter of the city area. Because of these abundant water resources and fertile lands, Wuhan is called “鱼米之乡”, the hometown of fish and grain. The region produces over 240 types of crops and more than 100 species of aquatic animals.
4.1.3 Site Introduction

The proposed project site, Jiangdi Village is located in the southwest suburb of Wuhan, along the Yangtze River (Figure 4-2). This village belongs to Hanyang district and was established by Wuhan Government during the 1950s. It was a rural village before the 1980s. After Chinese economic reform, Wuhan City has kept expanding. As a result, Jiangdi Village has gradually become a suburban village.

![Figure 4-2: Site location](image)

4.2 Site Context

The west boundary of the site is Guobo Road, a main transit corridor connecting Wuhan urban and rural areas. The east boundary is the Yangtze River, the mother river of Wuhan. Part of the north boundary is Baishazhou Yangtze River Bridge (BYR Bridge), and the other part of the north boundary is Waterfront Park. The south boundary is defined according to the boundary of village and coal yard. The levee (Lanjiangdi Road)
bisects the site (Figure 4-3). The total area of the site is 161 acres.

4.2.1 Transportation

BYR Bridge connects to the vehicle-only elevated highway and crosses over the site. Visitors from Wuchang may enter the site from BYR Bridge.

Guobo Road is the main arterial that brings people into the site. People from BYR Bridge will also turn onto Guobo Road. Furthermore, the future #6 metro station, east of the site, may bring more people here. Thus, the possible main entrance of the site could be along Guobo Road.

The levee (Lanjiangdi Road) is another way people may enter the site. The levee used to be the main entrance to the site before Guobo Road was built ten years ago. However, it has been less used in recent years. Since the levee divides the sites into two parts, the design considers the connection between the two parts.

Figure 4-3: Site context: transportation map
4.2.2 Surrounding Land Uses

Figure 4-4 diagrams the site surrounding land use.

![Site context: surrounding land use map](image)

The areas several blocks away from the site, which used to be farmlands, are being redeveloped now (Figure 4-5). Most of these areas will be new high-rise communities in the future.
Farmlands & Agricultural Villages:

Other existing farmlands and agricultural villages around the site will also be developed as high-rise communities in the near future. The existing farmlands are mainly vegetable farmlands.

Open Space:

The primary open space adjacent to the site is Waterfront Park (Figure 4-7). The
park is being developed in several phases. This linear park along the Yangtze River has three functions—aesthetics, flooding protection and providing green activity spaces (Wuhan Parks). The first and second phases were open to public in 2006 and 2007. The end of the second phase is adjacent to the site. The remaining phases will be completed in the next few years. Hence, the design will consider the continuation of the existing and future Waterfront Park. The exiting Waterfront Park is a large recreational and ecological park (Baidubaike, Hanyang). It provides Wuhan residents resting spaces and activity spaces for swimming, biking, jogging and open-air film. This park is also an ecological flood control dam. The trees and shrubs in the park not only prevent soil erosion, but also provide landscape enjoyment.

Figure 4-7: Waterfront Park—1st phase (Wuhan parks)
Industrial:

The industrial area south of the site is a coal yard. The north part of the coal yard will be developed to more multi-family housing communities, while the south part will become part of future Waterfront Park.

4.2.3 Conclusion

The design considers the connection with the existing Waterfront Park and future residential. Secondary entrances will be set so that the site is accessible to residents nearby.

4.3 Site History

Figure 4.8 shows an abstract map of the site and surrounding area before 1949, drawn according to local villagers’ descriptions. The figure shows that the site and its surroundings used to have large areas of ponds and lakes. Flame Ditch and Taizi Lake were directly connected with Yangtze River directly. A canal system was used for irrigation. Dwelling houses were scattered and located on both side of the area which now is the main levee. Farmlands and dwellings were surrounded by large areas of wild vegetations, including forests, wetlands and shrubs. This vegetation provided good habitats for birds and animals. The Yangtze River was also good habitat for aquatic animals. Countless fish offered good opportunity for fishing. Most villagers were both farmers and fishermen. The shore of the Yangtze River used to be docks for commercial
ships coming and going. Most of the ships transported timbers from upstream to Shanghai.

Figure 4-8: Abstract site map before 1949
Figure 4-9: Site land use
Figure 4-10: Abstract sections of site before 1949 (left figure) and now (right figure)
However, most lakes and ponds had been filled during the last decades (Figure 4-9).

Figure 4-10 demonstrates the differences of the site between before 1949 and now. Flame Ditch and Taizi Lake no longer reach into the Yangtze River because of the construction of the main levee and expansion of land.

Now the site mainly contains farmlands, residential, vegetation, businesses industries, ponds and floodplains (Figure 4-9). Farmlands account for the largest area. The following section will introduce these different land uses and related information.

4.4 Circulation

Figure 4-11 shows the existing circulation. The two levees crossing the site also hold roads. The circulation inside the site is country roads without planning. This creates several problems:

1. Many dead-end roads

2. Roads too narrow for two-way vehicles (average 10’ to 14’) (Figure 4-12)

3. Most roads unpaved

4. No safe pedestrian access to the other side of the levee

Potential solutions:

1. By-pass loop around the site for vehicle circulation

2. Pedestrian access across the levee built beneath existing bridge.

Pedestrian conditions in residential areas will be discussed in the later residential paragraph.
Figure 4-11: Site transportation

Figure 4-12: Narrow vehicle road (by author)
4.5 Vegetation

The primary vegetation areas are buffers along the main levee, containing forests, shrubs and a few wetlands (Figure 4-13). During the last century, the original wild forests gradually disappeared. Most existing vegetation was planted after the levee was built. However, the main levee only has vegetation on the west side, because east side is concrete to defend against floods (Figure 4-13).

The main vegetation species on-site contain aspen, mulberry, dawn redwood and camphor tree. They provide habitat for wildlife. In the past, the site and surroundings used to be habitats for birds (hawk, egret, white stork and owl), mammals (rabbit and fox), insects (firefly and cicada) and aquatic animals (Chinese alligator and Yangtze finless porpoise). However, though wildlife populations have somewhat recovered in recent years due to increased vegetation, it is still hard to see most of these animals now. The design will preserve vegetation and provide more habitats. Furthermore, vegetation is also needed as buffer between farmlands and other land uses to serve as wildlife corridors.
4.6 Business Zone

The business zone contains several industries such as food and architectural material companies. This creative project proposes moving these businesses to other locations because the industrial uses are not compatible with the planned residential and environmental development. Since the land is flat and has been previously developed, this zone is suitable for parking, visitor center and other auxiliary buildings.
4.7 Residential

The site contains two high-dense residential areas (Figure 4-14). Between them are two ponds and farmlands. The overall population is 500, living in approximately 160 households. The population has increased from about 260 since 1996, from natural growth.

Figure 4-14: Residential building footprint

4.7.1 Building Conditions

Most buildings in the residential areas are dwellings, with utility sheds and livestock
barns, except one factory in the southeast corner of north residential area (Figure 4-15). Most buildings are two to three-floor brick houses, built by the farmers themselves from the 1970s to 1990s. Some buildings are temporary and/or in poor condition, primarily including barns and sheds (Figure 4-15). All livestock barns are adjacent to dwellings, which causes sanitary problems. Most buildings' façades are cement mortar or ceramic tiles (Figure 4-16). The spaces between buildings are narrow, and some buildings almost touch each other (Figure 4-17).
Figure 4-15: Residential building condition

Figure 4-16: Existing building conditions (By author)
4.7.2 Residential Circulation

Inside the residential area, the existing circulation is basically narrow alleys for pedestrians (sometimes for vehicles). The circulation has been formed by buildings without any plan or design. Path widths vary from 7’ to 21’. There are several problems:

1. Most alleys lack pavement and have drainage problems (Figure 4-19).
2. Buildings block alleys resulting in dead ends (Figure 4-18).
3. Crossing vehicle roads interrupt pedestrians and often cause traffic conflicts.
4. The increasing number of private vehicles and lack of garages or parking lead to villagers parking their vehicles in alleys, which makes alleys even narrower (Figure 4-20).
Figure 4-18: Existing residential circulation

Figure 4-19: Unpaved alley
4.7.3 Residential Public Space

In the past, when dwellings were more scattered, almost every house had its own yard facing south (Figure 4-21 and 4-22). The yard was usually open or semi-open and acted as a transitional space. Most yards were used as outdoor playgrounds, dining space, and drying areas for clothes and crops. Some dwellings had both front yard and back yard. Usually the back yard also served as a kitchen.

Figure 4-21: Typical dwelling in the past
Today, public spaces in residential areas are insufficient due to high building density. Basically, all spaces outside dwellings are public spaces. All activities that used to be done in spacious yards are now compressed into small shared spaces like alleys. The existing main gathering spaces are actually not conventional planned gardens or plazas (Figure 4-23 and 4-24). They are just spaces large and open enough for villagers to chat, relax and play. They are usually areas enclosed by buildings, at the entrances or under trees. Figure 4-23 also shows the potential public spaces according to pedestrian circulation and existing trees.
Figure 4-23: Analysis in gathering space
4.8 Agriculture

Now farmers in Jiangdi village are still using intensive agriculture, which has several characteristics. Each household has contracted with the state for the management of nearly 2-3 Mu (0.33- 0.49 acres) farmlands. Residences are near farmlands, which is convenient for farmers going to work. However, unlike farms in the US, products storage barns and dwellings are combined. The advantage is that it can save some space. The drawback is the lack of space for packaging food productions. Plus, it may cause some sanitary problems.
Farmlands in the village are in good condition for growing food (Figure 4-25). Land to the west of the main levee contains loess soil, which is suitable for crops like potato and sesames. Land to the east of the main levee is mainly silt loam, which is good for most vegetables (like cucumber, spinach and green bean).

The main agricultural products are vegetables, aquatic products (fish, lotus roots & lotus seeds) and some livestock (mainly pigs and buffalo). The aquatic products represent Wuhan local water culture. Livestock are kept for two uses: selling for money and working in the field.

Agriculture pattern is part traditional and part industrial. Pesticides and chemical fertilizers are used in most fields. But some farmers still use natural ways to grow. Small containers which collect and store human and livestock waste for fertilizing can be seen adjacent to farmlands (Figure 4-26). However, these are smelly and unclean for passers-by. Some livestock barns are near ponds, so their waste can feed fish. Most livestock are fed with natural food (like reeds and grasses) rather than chemical feed.
4.9 Hydrology

The village is still using levee-surrounded fields for farming. In the east part of the site, water comes into a canal from the Yangtze River and then flows into fields. During floods, the gate on the levee will close. Irrigation in the west part of the site is mainly from ponds.

4.9.1 Canal system

The canal system is used to provide the main irrigation. However, now most irrigation uses half canal system and half pump (Figure 4-27) because:

1. Some ditches are polluted. (Figure 4-28)
2. Pumps are cheaper than before.

The result is the energy of waste and environmental pollution. The design considers
restoring the canal system and improving its efficiency.

Figure 4-27: Pumping water for irrigation (By author)

Figure 4-28: Polluted ditch (by author)

The ponds on site are in good environmental condition and include three different types (Figure 4-29):
1. normal ponds
2. fish ponds
3. lotus ponds

The average water depth is 1.5 (4.5’) to 3 meters (9’), but may fall a little in winter (Yang, 57). According to paddy rice-fish system and lotus root-fish system, a new pond-canal system will be designed to match the site condition.

Figure 4-29: Canal and pond system

4.9.2 Topography
Though the average topography of Jianghan Plain is relatively flat, the site still has some topographical change due to the manmade levee and its special riverside location. The highest relative elevation is 30.6 meters on the main levee, while the lowest is 20.2 meters along the Yangtze River (Figure 4-30). Basically, the land elevation outside the main levee (average 21 to 23 meters) is higher than that inside the main levee (average 22 to 25 meters), which is a typical landform along Yangtze River in Jianghan Plain. The two residential areas have a relatively higher elevation (average 23.1 meters).

Figure 4-30: Site hydrology
Drainage problems (Figure 4-31) may happen in residential areas during rainy seasons (summer) because water from the levee comes down too quickly into these neighborhoods. Other possible flooding areas are mainly farmlands. To improve drainage conditions, storm water collection and treatment will be considered.

Figure 4-31: Site potential flooding area

4.9.3 Floodplain

The floodplain is mainly the area outside the secondary levee. Before Three Gorges Dam was built in 2000, Jiangdi village suffered from frequent Yangtze River flooding.
Floods happened nearly every year outside the main levee. However, flooding problem became much better after 2000. Now only the area outside the secondary levee has flood risk in summer.

4.10 Opportunities & Problems

4.10.1 Opportunities (Figure 4-32)
● The site has a rich history of traditional agriculture and water culture. Agricultural modes used to have harmonious relationships with the surrounding environment. This history, together with the site's remaining agricultural fields, ponds, canals and the Yangtze River, offer opportunities to celebrate traditional agriculture and water culture.

● Waterfront Park and the newly built high-rise communities near the site offer opportunities to design public open spaces for nearby residents.

● The site location is in the transition area between urban and rural. The highway, Baishazhou Bridge and future metro station make this an ideal location for agricultural tourism for Wuhan residents.

4.10.2 Problems (Figure 4-33)

● The agricultural pattern on-site is transitioning from traditional to industrial. The underutilized canal system and overuse of chemical fertilizers have caused pollution, which disturbs the relationship between humans and nature.

● Residential areas lack planning, which causes shortages of open spaces, and building condition problems.

● Transportation on-site is still pedestrian-dominated, but becoming increasingly vehicle-oriented. It has problems including dead-ends, narrow alleys, drainage issues and lack of pavement and parking. The levee, which cuts the site into two
parts, complicates circulation design.

Figure 4-33: Site problem analysis
Chapter 5: Design

5.1 Goals and Objectives

Establish an agricultural park model suitable for Wuhan suburban areas. Choose one site to design the specific agricultural park.

Target users (Figure 5-1):

- Local villagers
- Residents nearby (in the future)
- Residents in Wuhan city

Figure 5-1: Target user’s analysis

Goals & objectives for the agricultural park model:

1. Celebrate and preserve China’s traditional agriculture

- Preserve and rehabilitate existing farmlands and aquaculture by demonstrating
traditional farming in three ways:

- Introduce China’s traditional farming history by bringing it to life
- Demonstrate traditional farming technology
- Demonstrate traditional integrated farming system

- Design farmer’s market so that visitors can taste and buy agricultural products.

2. Preserve traditional Jianghan Plain water culture

- Preserve traditional aquaculture
- Recover habitat such as wetlands
- Provide traditional water activities like collecting water chestnuts and fishing
- Provide cleaner and better water landscape

3. Provide outdoor green activity spaces

- Provide farmer’s tour features with various activities related to preservation, entertainment, education and production
  
  - Preservation: Traditional farming demonstration, Farmer’s market
  - Participation: Traditional farm work, U-pick, Traditional food making and tasting, Seasonal activities, Fishing, Swimming, Farmer’s market, Trail
  - Education: Traditional farm work, Indoor course, Outdoor class, Children’s Garden, Guided tour
  - Production: Farmer’s market, Allotment

- Provide public space for residents nearby

  - Easy access
➢ Plaza for exercise like square dance and Taichi
➢ Semi-open space for chatting and relaxation
➢ Allotment

4. Improve the living environment of existing village

● Redesign village transportation system (vehicle & pedestrian)
● Provide public spaces like open lawns and playgrounds for gathering, chatting and relaxing
● Waste water treatment
● Storm water treatment

5.2 Design Process

Based on the goals and objectives, the conceptual design considers the integrated agricultural system, hydrology, public space and circulation. The main levee divided the park into two parts, designated “the east” and “the west”.

5.2.1 Integrated Agricultural System

After analyzing the existing agricultural system on-site and researching traditional Chinese agricultural systems, the project design includes a new integrated agricultural system for the site. This system is a demonstration of traditional agriculture. The philosophy of this system is from China’s traditional agriculture philosophy mentioned in chapter 2, which integrates nature’s benefits and avoids environmental damage. The
major farming mode is intensive cultivation, which means the main labor is humans and livestock. Livestock are kept to plow fields and deliver goods, and also for meat.

Figure 5-2: Agricultural system concept
Figure 5-2 illustrates the basic idea of the integrated agricultural system. From the main entrance (west) towards the riverbank (east), the agricultural landscape transitions from farmlands, partially cultivated areas to natural areas. As visitors walk into the park, they can have feelings of gradually transitioning from artificial to natural. Basically, the farmed area contains vegetable fields, rice paddy and soy fields. Partial cultivated areas include fish and lotus ponds, and barns. Shrubs and forests are maintained as wild areas.
Figure 5-3: Section of integrated agricultural system concept
Figure 5-4: Integrated agricultural system plan
Figure 5-3 and 5-4 show how the integrated system works. It is a circulation system which essentially combines the mulberry dyke-fishpond, paddy rice-fish, lotus root-fish (introduced in chapter 2), and canal systems.

Humans will ultimately receive all products from farmlands and ponds, and will provide waste as fertilizer. Mulberry trees planted along ponds provide leaves as food for silkworms, which produce waste as food for fish. The water in fish and lotus ponds can be exchanged, so nutrients from fish waste fertilize the lotus, while lotus ponds give back clean water to fish ponds. Most barns are built adjacent to ponds, so livestock waste can be delivered directly into ponds as food for plankton, which feed fish. Livestock are raised cage-free and their major foraging areas are at the edge of pastures, shrubs and forests. This maximizes the livestock’s food sources (such as wild fruits and nuts). However, fencing limits livestock to a certain area so that they won’t bother visitors or damage vegetations in forest. Barns are built near farmlands, so it is easier for livestock to work in the fields.

5.2.2 Hydrology Concept

The on-site canal and stormwater systems are designed based on the existing topography and ditches (Figure 4-29 and 4-30).
Figure 5-5: Conceptual canal and stormwater systems
Figure 5-5 shows the conceptual idea of the canal and stormwater systems. The hydrological concept is based on the levee-surrounded field typology analyzed in chapter 2, and is part of the integrated agricultural system. All the existing ponds are retained and some are reconfigured.

The canal system’s source water comes into the site from the northeast canal (A) (Figure 5-5). After flowing through a series of ponds and irrigating the eastern farmlands, half of the water is pumped by water wheel to the north side of the levee, while the rest is purified by wetland to the swimming pool, and the excess returns into the Yangtze River. In the west, stormwater is collected and combined with canal water for irrigation. The excess water finally goes into the ponds on site.

5.2.3 Public Space Concept

Figure 5-6 diagrams public spaces and visitor circulation. The primary entrance to the complex (A) is in the west, facing the Guobo Road. Secondary entrances—B, C and D connect the park with the planned nearby residential areas and Waterfront Park. All the entrances also provide gathering spaces for exercise, like social dance and Taichi for nearby residents.

The gathering spaces in the west include an entrance plaza, visitor center and outdoor farmers’ market. These gathering spaces form an axial landscape. In the east, two separate gathering spaces are along ponds.
Figure 5-6: Public space diagram
5.2.4 Circulation Concept

The proposed circulation retains most of the existing shared roads but improves their conditions and separates vehicular from pedestrian. The vehicle circulation is a loop, while the pedestrian circulation contains two loops evolved from public space design (Figure 5-7). The circulation is based on the integrated agricultural system and public space mentioned above, and covers most area of the park.

Pedestrian paths are the main transportation mode inside the park, and visitors park their vehicles in the public parking lots (A and B) (Figure 5-7). Villagers living inside the site park their vehicles in private lots (C and D) (Figure 5-7), which are near the residential areas. Circulation inside the residential areas is for pedestrian only. However, even though farming products are delivered by livestock, all delivery requirements cannot be met in this way. Thus, vehicle roads inside the park are for service and delivering farming products, so traffic will not be very busy while visitors are in the park.
Figure 5-7: Conceptual circulation diagram
5.2.5 Conceptual Plan

After layering the four components discussed previously, the conceptual plan (Figure 5-8) was completed. Buffers are added between all farmlands and surrounding lands. The forest buffer along the main levee is retained and connected with new buffers. The pedestrian circulation is connected by boating, which enriches visitors’ experience. All shared roads have less automobile traffic.

Figure 5-8: Conceptual plan
5.3 Master Plan

Figure 5-9 presents the master plan which was developed and refined from the conceptual plan. The design offers visitors a pastoral feeling as they enter the park. The design style of the whole park tends to be natural, and mimics traditional China’s rural landscape. The following section describes each area of the master plan. Specific design details will be described in section 5.4.
Figure 5-9: Master plan
1) Visitor experience starts at the main entrance plaza, which is designed to attract them into the park. A path leads visitors to the visitor center. At the same time, it acts as a street garden which provides nearby residents gathering spaces.

2) The visitor center is comprised of six connected one to two-story buildings. These buildings enclose two courtyards, which reflect characteristics similar to traditional Chinese rural residential yards. At the visitor center, visitors gain a good understanding of the whole park.

3) The farmers' market is an open linear space, where visitors taste and buy agricultural products. It is also a transition plaza because it is at the intersection of several paths.

4) All allotment gardens are near entrances, which are easily accessible for nearby residents.

5) The vegetable garden is a living history museum, presenting traditional farming style. Visitors can become like traditional farmers here and experience farming work such as U-pick or using buffalo plowing. Showering rooms and changing rooms allow visitors to go back home clean.

6) The soy field contains both soy farmlands and a soy product workshop. Soybeans produced in the field will be processed in the workshop. The workshop is equipped with buffalo-powered water mills to produce soy milk and tofu.

7) The vegetable fields mainly produce farming products for sale. The onsite villagers are the major labor.
8) Residential areas are redesigned in terms of circulation, public space, waste water and stormwater treatment. The houses adjacent to the pond also provide craftsman shops and restaurants. Thus, visitors can taste rural food and learn traditional crafts.

9) Buffers along the main levee and site boundaries are mainly shrubs and trees that block view and noise, and also provide fruits and nuts.

10) The drop-off area for cars and buses is near the public parking lot and visitor center. There are several parking spaces for the disabled.

11) Water Village contains a natural swimming pool, swimming center, water plaza and boat rental. It is a place to celebrate the water culture and Dragon Boat Festival.

12) Silk Village includes a silk workshop, silk plaza, mulberry tree grove and boat rental. Visitors can gain a good understanding of silk production here.

13) The waterway through these fish and lotus ponds connects Silk Village and Water Village. Visitors can enjoy boating and pick their own water chestnuts and lotus roots while boating.

14) The forest preserves natural habitat for native wildlife. The edge of the forest also provides food for livestock.

15) Most barns are in the shrubs and adjacent to ponds. Some are at the edge of shrubs and forests. Food sources for livestock are both from forest and shrubs.

16) This fish pond is the largest on site and is used as a fishing pond for visitors. Along the west bank of the pond are some fishing pavilions.

17) There are three secondary entrance plazas on site. All of them provide gathering
spaces with visitor access to allotment gardens and the park.

18) The rice paddy is at almost the lowest location in the east because rice farming requires much water.

19) The wetland is at the lowest point in the east. All canal water in the east finally flows into it and gets purified. Then water goes into the natural swimming pond.

20) To maintain the design continuity of adjacent Waterfront Park, the floodplain is designed to step down to the Yangtze River. The floodplain is covered with local productive vegetation. Visitors can get close to the Yangtze River here.

5.3.1 Residential

The residential areas (Figure 5-10) have been redesigned in terms of circulation, gathering spaces, stormwater and wastewater management.
Figure 5-10: Residential plan
1. Residential Circulation

Paths inside residential areas are pedestrian only. The main purpose to redesign residential circulation is to make sure that every house has safe and convenient access. The circulation also connects all residential gathering spaces.

As mentioned in Chapter 4, the two existing vehicle roads in residential areas may disturb villagers’ lives. The roads have been moved outside the residential areas. The original roads are transformed into pedestrian paths. The new circulation (Figure 5-11) solved the dead end roads problem by relocating some houses to the new residential areas. All paths are 5’ wide, paved with flagstone, and lined with lawn and other plantings.
2. Residential Gathering Space

The number of residential gathering spaces (Figure 5-12) has been increased and redesigned. Most of them are near residential entrances or at the intersection of paths. They provide open spaces with trees, lawns, shelters and seats to encourage interaction among villagers. Gathering spaces are mainly designed for chatting, resting, children
Figure 5-12: Residential gathering space plan

Figure 5-13 shows a general plan for a residential gathering space. This space is divided into two parts. The north part is a passage connecting entrance with the inside village. The south part is a relatively private space with sunken lawn and one large canopy tree. The setting of this canopy tree mimics the feeling of a traditional Chinese village. Parents can sit under the canopy tree chatting, while children play in the sunken
lawn (Figure 5-14). Residential private backyards are blocked by brushes and trees.

Figure 5-13: Typical residential gathering space plan
3. Residential Stormwater Treatment

As mentioned in Chapter 4, existing residential areas have mild drainage problems. A stormwater treatment system is designed based on the topography. Stormwater is collected from east to west and finally flows into bioswales (Figure 5-15). Then it is combined with canal water and irrigates farming fields.
Figure 5-15: Stormwater analysis plan

Most houses are equipped with rain gardens or bioswales in front or at the back of buildings if there is enough space (18’ between two rows of houses) (Figure 5-16). Rainwater is collected from roof to rain garden, and then flows into bioswales.
4. Residential Wastewater Treatment

Wastewater is collected through underground pipes (Figure 5-17) and treated in Solar Aquatics System (SAS) near or in the farming fields. Solid waste is separated and used as fertilizer for farming. The remaining black water is filtered, treated and recycled for uses like flushing toilet or irrigating landscape.
Figure 5-17: Wastewater analysis

5.3.2 Allotment Garden

The main target users of the allotment gardens are nearby residents. Allotment gardens are all adjacent to entrances, which make it easier for nearby residents to come
and work. There are five sections of allotment gardens (Figure 5-18), each with 22 to 32 parcels of farming fields.

![Allotment garden distribution](image)

Figure 5-18: Allotment garden distribution

Figure 5-19 shows a typical allotment garden. Each garden has a gathering space equipped with a garden, restroom, showering room, and shelter for farming tools. The gathering space is a preparation space for farming work, and also encourages communication among nearby residents.
Figure 5-19: Typical allotment garden

Figure 5-20 illustrates a typical parcel in the allotment garden. Every parcel is a square of 35' by 35'. Within each parcel, ridges divide farming fields into four pieces, so residents can grow different vegetables such as cauliflower and spinach. An irrigation canal flows along the ridge.
5.3.3 Floodplain

The design style of the floodplain mimics a natural environment. Plants native to the region have been selected, and most are productive, such as fruit and nut trees.

The floodplain is accessible for visitors, via three steps down towards the Yangtze River. Each step has a trail connecting the north and south future Waterfront Park. People can walk, jog and cycle on the trail. At the third step, platforms are extended to the Yangtze River, so people can get close to the river and enjoy the river view.

Figure 5-21 shows floodplain sections under normal and flooding situations. When it is under flooding, the third step is underwater. After flood recede, the soil in the third step becomes more nutritious and suitable for vegetation growing. Figure 5-21 also demonstrates how stormwater is collected. Runoff flows through each step, is purified by vegetation, and finally goes into the Yangtze River.
Figure 5-21: Floodplain section (usual and flooding period)
5.3.4 Activity Plan

Figure 5-22 shows the possible activities onsite. Basically, activities are divided into five different parts: agriculture related, water culture related, agriculture and water culture related, festival and celebrations, and other activities. In each season, the park will have different activities according to seasonal landscape, which offer urban residents opportunities to understand solar term, touch nature, and feel its various beauties.
Figure 5-22: Activity plan

5.4 Site Design

5.4.1 Entrance Plaza
Figure 5-23: Main entrance plaza zoning
The main entrance plaza is the gateway into the whole park (Figure 5-24). Most visitors enter the park through here. The entrance area is designed in a rural style to remind visitors of idyllic life as they enter the park. The main design language is curved and irregular rather than linear.

Figure 5-23 shows zoning of the main entrance plaza. Unlike common huge paved plazas in most Chinese cities, this plaza has several different spaces. The entrance is buffered by a vegetated mound, to block views from the road. The north area features an allotment garden, while the south area is forest. Between them are the main pedestrian path and several gathering spaces. The path terminates at the visitor center with a small
slate paved terrace in front.

Along the path are two rows of street trees, directing pedestrian to the visitor center (Figure 5-25). Following the topography, the path steps up towards the visitor center (Figure 5-26). Here the path transitions from flagstone to grass to make it more natural, with two rows of slate pavement on it.

A curved stream starts from the terrace, cuts through the path, connects all the gathering spaces and ends at the entrance buffer. The stream breaks the sense of monotony created by the path. The stream represents the water culture of Jianghan Plain and enlivens the whole space. It is a shallow stream, so people can play in it. Parents can sit under trees chatting, while their kids are playing in the stream.

The gathering spaces are public, especially nearby residents. Elders can enjoy their morning exercise, and children can play games after school.

Figure 5-25: Main entrance plaza section
5.4.2 Farmers’ Market

The farmers’ market is a place to sell and purchase agricultural products, but also a space to celebrate traditional agriculture.
Figure 5-27: Farmers’ market plan

The farmers’ market (Figure 5-27) is a linear space at the focal point of the whole park. The topography slopes down towards the wetland.

The west paved area hosts daily farming products sale (Figure 5-28). Vegetables and street trees line on both sides. The curved shape forms spaces like booths for product sales. In the middle of the paved area, a row of trees and some wooden structures form several small spaces for visitors to rest and taste food.
The east area is unpaved, and usually the extension of the west farmers’ market (Figure 5-29), with mobilizable booths and vegetation containers. During festival seasons, it is an open space for celebrating festivals and having activities. In the summer time, it can be an outdoor cinema (Figure 5-30). During each season’s solar term, this space can hold different activities to show characters of the season.
5.4.3 Silk Village

As part of the integrated agriculture system, Silk Village (Figure 5-31) produces silk and silk products, and also educates visitors about relevant knowledge.
Visitors mainly come to Silk Village via the pedestrian bridge. As they arrive at the plaza, they have three options: boating, forest, and the silk workshop (Figure 5-32). The plaza is an open gathering space with a mound in the middle and mulberry trees around.

Most mulberry trees are planted along the ponds. Silkworms are raised both on mulberry trees and in the silk workshop. Once produced by silkworms, silk is processed
into products like silk cloth and artwork in the silk workshop. Visitors can take tours showing how silk is made and buy silk products in the gift shop here.

Figure 5-32: Silk Village section

5.4.4 Water Village

The main theme in Water Village is to let visitors understand and experience water culture (Figure 5-33). The main entrance is from the pedestrian bridge.
The Water plaza celebrates water culture and the Dragon Boat Festival (mentioned in Chapter 2). The open space is for festival activities. For example, visitors can learn how to wrap traditional rice pudding here, because the materials (paddy rice and lotus leaves) are adjacent to the plaza.
The path along the way to the swimming center features a row of fountain jets. This increases the interaction between people and water. The swimming center is adjacent to the natural swimming pond, which may recall most senior local residents’ memories of swimming in rural ponds decades ago (Figure 5-34). Water enters from wetland to natural swimming pool through filtration pond and the vegetation wall between the two ponds, which make water cleaner.

Water Village is also the endpoint of the boating tour after people harvest water products from fish and lotus ponds.

Figure 5-34: Water Village section
Chapter 6: Conclusion

This creative project demonstrates an agricultural park design in the suburb of Wuhan, China. The main purposes are to preserve and celebrate Jianghan Plain’s traditional agriculture and water culture, provide local and Wuhan residents more outdoor green spaces for activities, and improve the on-site villagers’ living conditions. To achieve the goals above, the following steps are finished:

1. Historical and Theoretical Research

The literature review contains the background of Jianghan Plain’s water culture, China’s traditional and modern agriculture, agricultural tourism, and public space in China. The case study explored different precedents in traditional agriculture preservation and suburban transformation around the world. A full understand of the project background and investigations served as the basis for design.

2. Site Inventory and Analysis

This was accomplished through site visits, interviews, observation, inventory and analysis. Since most lands around the site are going to be transformed to high-rise residential or future Waterfront Park, it gives the site opportunities but also restricts the project due to lacking proper information of future surrounding lands' development.

3. Design

The program was designed after the two steps above, including the agricultural system concept, the hydrology, public space and circulation concepts. The final design
resulted from layering those four concepts together: it provided better living space for on-site villagers, green parkland for nearby residents, and educational backyards for Wuhan residents.

Further design considerations should include the following:

1. Relationship with surrounding land
2. Vegetation selection
3. Floodplain detail design
4. Engineering design