

# Landscape Gene Recognition and Utilization of Zhaoyu Ancient City in Qixian County from the Perspective of Wanli Tea Road

Zhaoyi Bai<sup>1</sup> Keyi Shi<sup>2</sup> Jiahao Wen<sup>3</sup>

<sup>1,2</sup> Shanxi University, Taiyuan, Shanxi 030006, China

<sup>3</sup> Xiamen University, Xiamen, Fujian 361004, China

<sup>3</sup>Corresponding author.

## ABSTRACT

The Wanli Tea Road, a tea trade route with a long history, originates from the western region of Sichuan in China and extends all the way to the Tibet region. This ancient trade route not only promoted the tea trade but also served as a bridge between different regions for economic and cultural exchanges. The critical node of the Wanli Tea Road, Qixian Zhaoyu Ancient City, is exemplified in this paper. The landscape genes of Qixian Zhaoyu Ancient City are identified and extracted to establish a unique landscape gene lineage in the region. The dilemma faced by Qixian Zhaoyu Ancient City is analyzed from four perspectives: environmental genes, architectural genes, layout genes, and cultural genes. Proposals are made to improve the surrounding environment, strengthening the style of the ancient city, enhancing the quality of the streets and lanes, and perfecting transportation facilities. Furthermore, courtyard management is recommended to be strengthened, and the protection of the original pattern is advocated. Cultural heritage is also suggested to be strengthened, and cultural activities to be organized for protection and inheritance. These strategies aim to provide a path for the protection and rational use of landscape culture in the Wanli Tea Road Qixian Zhaoyu Ancient City section, introducing new ideas and directions.

**Keywords:** *Zhaoyu Ancient City, Wanli Tea Road, Landscape genes, Gene mapping, Inheritance strategies.*

## 1. INTRODUCTION

Qixian, a city that served as an important historical node of the Wanli Tea Road, was once also a prosperous place for Shanxi merchants. A deep cultural, political, and economic heritage has been nurtured here. Qixian's historical and cultural symbols - Zhaoyu Ancient City, witnessed the changes of the times and the rise and fall of the city. Nowadays, due to the development of productivity and technological advances, the car and horse times of the small town also have to keep pace with the times. However, due to unbalanced socio-economic development, backward protection concepts, imperfect protection planning, and other reasons, how to deal with the continuation of the development of the ancient city and urban renewal construction of the relationship between the deeper use of the ancient city and the surrounding spatial

pattern, heritage of the regional Culture, protection of material and intangible cultural heritage has become an important issue that needs to be resolved urgently.

Landscape genes, i.e., the factors that distinguish a certain landscape from other landscapes inherited from generation to generation, play a decisive role in the formation of a certain landscape and are also the determinant for recognizing such a landscape.[1] They represent the unique natural environment, humanistic characteristics, and history of social development in a certain place, and carry rich historical and cultural information. Therefore, understanding and analyzing these elements can help designers grasp landscape design and planning, promote the retention of local characteristics, avoid the phenomenon of "one side of a thousand cities," and create an urban landscape with unique charm. In the

1990s, Liu Peilin, a famous scholar in China, put forward the landscape gene theory as a research method of landscape characteristics, which not only reveals in-depth information about the landscape gene theory but also provides insight into the landscape characteristics of a certain place. The landscape gene theory not only reveals the essential characteristics and external features of the landscape genes of traditional settlements but also presents the scientific method of constructing and recognizing the landscape gene map. The landscape genes of each settlement are unique compared with other settlements, and these genes together constitute the unique landscape and cultural value of the region. In order to preserve and pass on the traditional cultural characteristics of a place, it is necessary to accurately identify and refine the landscape genes that characterize the main features of the settlement. [2] These landscape genes can be scientifically and systematically analyzed and evaluated to understand the landscape features and cultural values of traditional settlements. By constructing landscape gene maps, the spatial distribution characteristics of landscape genes can be visualized to further understand the relationship between the spatial elements of the settlement and provide a new path for the protection and development of the settlement space.

In the study, Qixian Zhaoyu ancient city was selected as the object of analysis, and Hu Most's proposed "feature deconstruction method" was employed to analyze the environmental genes, architectural genes, layout genes, and cultural genes. Through this method, the formation of the cultural landscape process of Qixian Zhaoyu ancient city was interpreted, with the goal of providing information and material for the protection and planning of historical and cultural cities.

## **2. WANLI TEA ROAD AND QIXIAN ZHAOYU ANCIENT CITY**

### **2.1 *Wanli Tea Road Culture on the Qixian Zhaoyu Ancient City Landscape Gene Promotion Role***

The Wanli Tea Road, an ancient trade route connecting China, Mongolia, and Russia, is another international trade route across Asia and Europe after the Silk Road. Qixian, the place that carries a section of the legendary trade past, is not only the hometown of Jin merchants but also a key node of the Wanli Tea Road. In the Ming and Qing Dynasties, a generation of Qi merchants crossed

thousands of mountains and rivers, opening up a brilliant chapter of Wanli Tea Road. This legendary history in the ancient city of Qixian left a lot of footprints; thus, the ancient city of Qixian is known as the "Capital of Tea Merchants." The Qixian merchant gangs were the main opener of the Wanli Tea Road; their trade activities not only promoted the circulation of tea along the tea road and the ancient city of settlements but also gave rise to commercial forms such as the emergence of businessmen rest for the inns, inns, restaurants, and so on. Tea shops, tickets, and the establishment of merchants are reflected in the Wanli Tea Road in the ancient city of Qixian, which left traces of history. The development of Wanli Tea Road undoubtedly has a massive role in promoting the development of the settlement form of the ancient Qixian city.

### **2.2 *Qixian Zhaoyu Ancient City Landscape on the Cultural Impact of the Wanli Tea Road***

The Wanli Tea Road, a route that once collided with commerce and economic and cultural exchanges, greatly promoted the development of socio-economic, educational, cultural, medical, and other aspects of the ancient city of Qixian. At the same time, due to the gathering of the merchant gangs and the formation of a unique mode of operation, the Wanli Tea Road provides a new way of thinking about new strategies for doing business.

On the one hand, the 10,000-mile tea road culture profoundly shaped Qixian Zhaoyu's ancient city landscape. This unique cultural phenomenon affects the local people's way of life. With the emergence and development of commercial forms, a very distinctive commercial system and commercial facilities were born, and the ancient city of the tea trade closely related to the Ming and Qing Dynasty buildings vividly portrays the prosperity of tea culture and trade in this historical period. At the same time, the diversified cultures along the Wanli Tea Road also brought a rich cultural heritage to the Qixian Ancient City.

On the other hand, the unique landscape of Zhaoyu Ancient City in Qixian County also influences the development of the Culture of the Wanli Tea Road. The ancient city of Zhaoyu in Qixian County, as a carrier of tea culture and Shanxi merchant's culture, provides a platform for residents and tourists to understand the local Culture in the ancient city of merchant culture, martial arts culture, food culture, and folklore and

other intangible cultural heritage with the continuous development of the Wanli Tea Road subtle influence on the exchange of Culture between different regions. For example, the spread of Shanxi Opera and merchant culture in Zhangjiakou has further promoted the widespread development of Culture.

### **3. OVERVIEW OF THE STUDY AREA AND METHODOLOGY**

#### ***3.1 Overview of the Study Area***

Qixian is located in Jinzhong City, Shanxi Province; its ancient name is "Zhaoyu" because it was named after "Zhaoyu Qize Sou". Now, the ancient city of Qixian, its history can be traced back to the Northern Wei Dynasty Emperor Xiaowen Taihe years, the assistant of the assassin of the state of FenZan Qixian City. Through the Northern Wei, Eastern Wei, Northern Qi and Sui, Tang and Five Dynasties, Song, Yuan, Ming, and Qing dynasties of historical changes, Qixian has become China's more than 2,000 counties in the "qualification of the oldest" one of the ancient county. Because of the Ming and Qing dynasties of ancient architecture, which are well preserved and have a rich cultural and historical heritage, Qixian won the national historical and cultural city of honor. Qixian, the ancient town of Jinshang Street, is "China's famous historical and cultural street." The layout of the entire ancient town of Qixian is unique, presenting a "city of four streets and twenty-eight lanes" layout, with the overall spatial pattern of the integrity of the stores, homes, and streets in good order. There are over 1000 ancient courtyards and more than 20000 buildings with Ming and Qing architectural styles, greatly showcasing its style as the "township of the compound" style.

#### ***3.2 Research Methodology and Pathway***

In this paper, the landscape gene theory serves as the research basis, and the feature structure method of Hu Most is utilized to distinguish the landscape of Zhaoyu Ancient City in Qixian County into three material landscape genes and one immaterial cultural gene, which are environmental gene, architectural gene, layout gene, and cultural gene, respectively. Like "Figure 1", when analyzing the landscape genes of Qixian Zhaoyu Ancient City, researchers adhere to the basic principles of internal

uniqueness, external uniqueness, overall dominance, and local uniqueness, fully understanding its internal causes, exterior landscapes, key elements, and general characteristics. In the research process, the structure extraction method, draft extraction method, text extraction method, and elements extraction method are employed for identification and analysis. Furthermore, the field survey method, literature research method, and cross-study method are primarily utilized to identify the characteristics of material landscape genes and intangible landscape genes and to construct a landscape gene map.

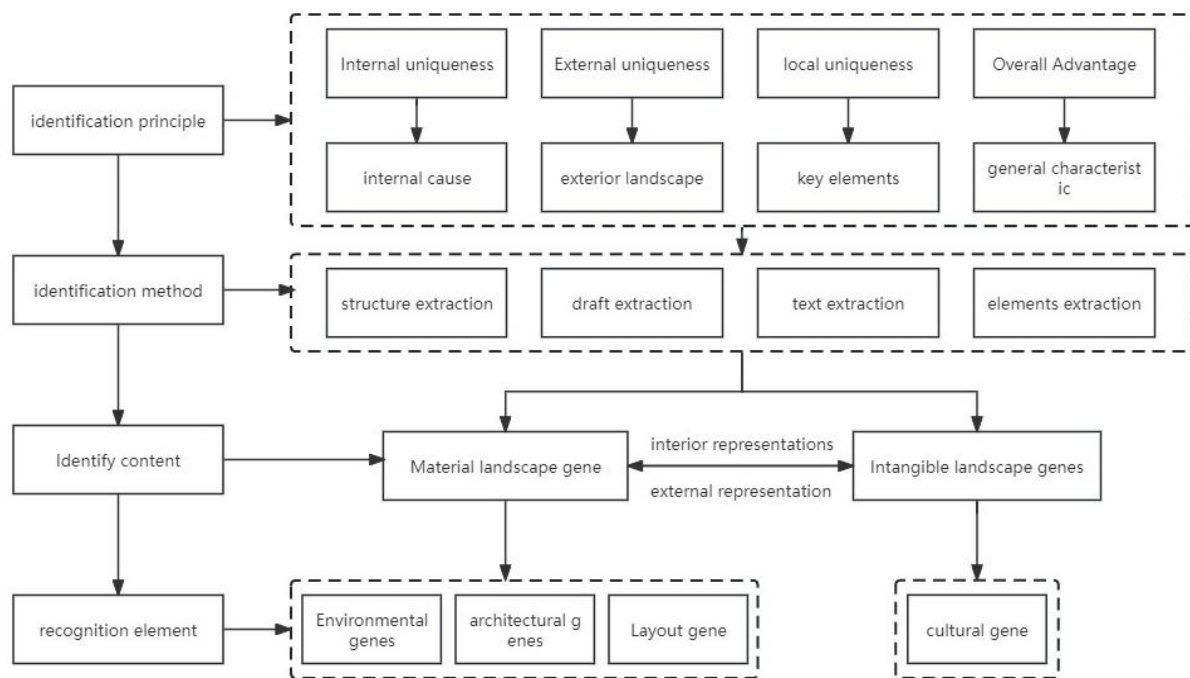


Figure 1 Research framework diagram.

## 4. QIXIAN ZHAOYU ANCIENT CITY LANDSCAPE GENETIC ANALYSIS

### 4.1 Environmental genes

The ancient city of Qixian is situated in the middle reaches of the Yellow River, known as the cradle of Culture, within the eastern part of the Loess Plateau, the southern region of the Taiyuan Basin, the northern foothills of the Taiyue Mountains, and the eastern bank of the Fen River. Resembling “Figure 2”, the location of the ancient city rests along a flat river, boasting a level terrain, with the Changyuan River flowing from its northeast; this location not only benefits from advantageous terrain but also enjoys natural advantages, showcasing the essence of ancient city sites in China. As depicted in “Figure 3”, the surrounding terrain of Zhaoyu ancient city is portrayed. Within the ancient city, the intersection of the east, west, north, and south streets in Qixian has a relatively high terrain. The naturally formed height difference makes drainage unobstructed and the central position more prominent.

Historically, Qixian has been relocated twice due to changes in the natural environment. In ancient times, swamps were transformed into fertile land due to environmental changes, while the original fertile land lost its cultivation value due to rising water levels. In the social context of the

development of the small farmers' economy, the change of the city site was undoubtedly an inevitable choice in line with economic development.



Figure 2 The surrounding environment of Zhaoyu Ancient City in Qixian County.

a Photo credit: Author's own drawing



Figure 3 Topographic map around Zhaoyu Ancient City.

a Photo credit: Author's own drawing

## 4.2 Architectural Genetics

Qixian Ancient City shows a unique historical and cultural heritage with its unique architectural style and rigorous urban planning. A complete architectural complex has been constructed from different aspects such as plan form, layout way, building structure, and detail decoration.

From the viewpoint of the plan form, the setting of the ancient city's architectural settlement is not arbitrary but follows traditional architectural design ideas. There is a unique centripetal nature between the streets and lanes, which enhances the cohesion and centripetal force of the settlement, and this

layout also makes the spatial layout of the whole ancient city well organized.

The residential buildings in the ancient city are mainly dominated by siheyuan, a form that was very common in the north during the Qing Dynasty. These courtyards have high walls and deep courtyards with elaborate and ornate shapes, most of which are binary and trinary. The Drainage House is also a very rare five courtyard in the country. This design fully embodies the originality of the ancient city in terms of its architectural layout at that time. On the basis of the courtyard pattern, Zhaoyu Ancient City, in the layout of the way, there are different changes and interpretations mainly reflected in two layouts: one is a multi-axis corridor layout, and the other is a single-axis plan layout.

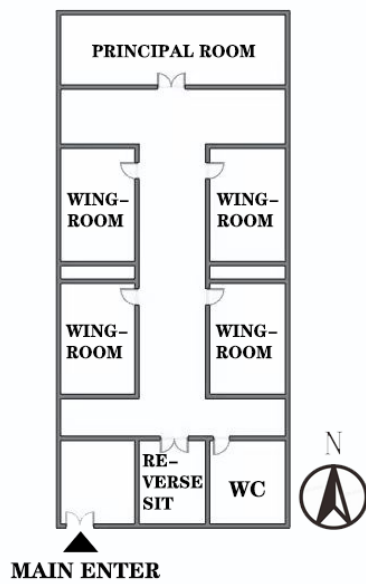


Figure 4 Single-axis plan layout.

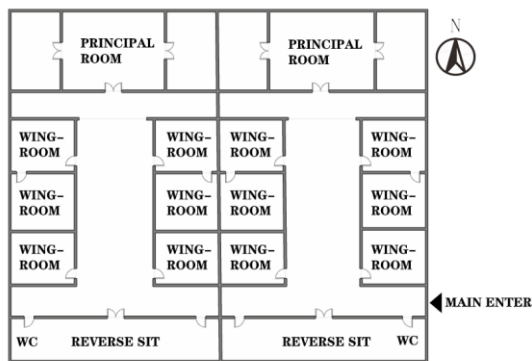


Figure 5 Parallel house plan.

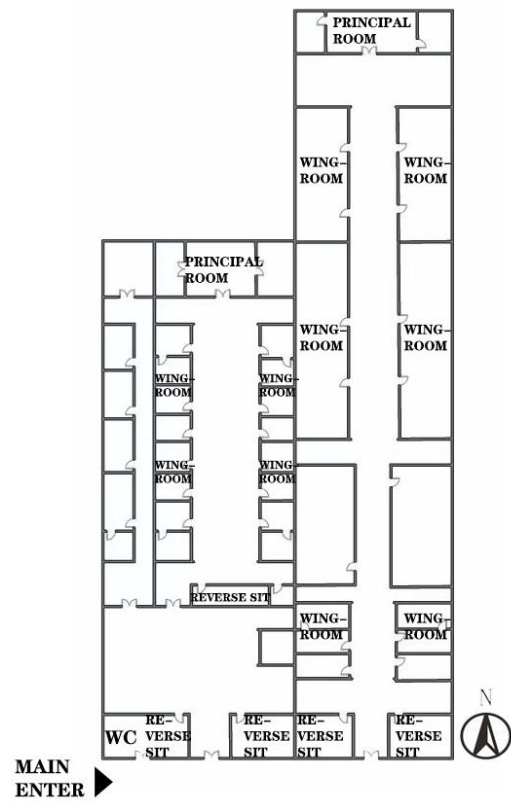


Figure 6 Fishbone house layout.

a Photo credit: Author's own drawing.

The single-axis plan layout mainly unfolds along a clear axis, which makes the whole layout distinctive and reflects the solemnity, majesty, and sense of order of the courtyard. “Figure 4” is a typical one-entry courtyard consisting of a main house, an inverted house, and two compartments with a symmetrical central axis. Functionally, it is generally characterized by parents living in the main house, children in the two compartments, and subordinates living in the inverted house. In the background of the special nature of the business of the Wanli Tea Road, the street building was set up mainly in front of the store behind the workshop, before the store after the residence in two forms as the main feature. That is, the store is opened in the front yard used to operate business, and the backyard is used for the owner of the firm and fellows to live, which is the front store after the residence. The backyard of the front store and the back workshop are mainly used to complete the operation process, such as purchasing, processing, and stocking goods. The merchant's residence then arranges the inverted seat room as a store, and the entrance and exit are also on the inverted seat side, which is convenient for the business to unfold.



Multi-axis corridor layout: This layout is mainly horizontal, and it combines the two elements of multi-axis and corridor, emphasizing the building's primary and spatial sequences. The corridor can connect different spaces in series to fulfill the functional needs of the building. "Figure 5" shows the parallel mansion, which is also the most basic type of multi-axis mansion. It is usually lined up in a glyph pattern, generally with no distinction between primary and secondary, which connects with each other and ensures the privacy and independence of the space. In addition to this, as shown in "Figure 6" the fishbone type residence is also more common in the multi-axis mansion, usually for the large, rich merchant family residence. The master lives in the main courtyard, and the servants and workers are in the side courtyard, so there is a clear distinction between inferiority and superiority.

In addition to the residential area, the streets in the ancient city were still lined with stores; in the Ming and Qing Dynasties, merchants gathered mainly with money, tea, tobacco, groceries, and other businesses. In today's ancient city buildings, people can still see the architectural style and decorative features of the Ming and Qing dynasties; the ancient city in the Wanli Tea Road trade activities formed a unique architectural form, showing a wide variety of spatial layout, history,

Table 1. Qixian Zhaoyu Ancient City building category

Building composition category	Specific buildings
People's homes	Fan's House, Dai's House, Qu Benqiao's House, etc.
Store business Rhyme	Dayukcheon Tea shop, Heshengyuan Tea Ticket shop, Yongjuxiang Tea shop, etc.
Ancient City Temples	Temple of Literature, Tai Qingguan, Gugu an, Wenchang Pavilion, etc.
neighborhood archway	Latticework Gate archway, The Confucian Temple Square, Depei Tiandifang, Daoguan Ancient, and Modern Square
School compound	Jingxin Elementary School
Residential archway	Qu family compound eleven-stepping archway, Qu family Yanshenzhaiyuan archway, Zhang Yongxuyuan archway, etc.

The decorative patterns found everywhere in the Jin merchants' mansions in the Old City also provide valuable clues to Jin merchant culture. Brick carvings, wood carvings, stone carvings, colorful painting decorations, ceiling decorations, and niche decorations in the ancient city all contain unique folklore symbols, demonstrating the local people's desire and pursuit of a better life, such as good fortune and longevity, many children, and good luck. In the decoration of residential buildings

Culture, tourism, and other aspects have an important reference value.

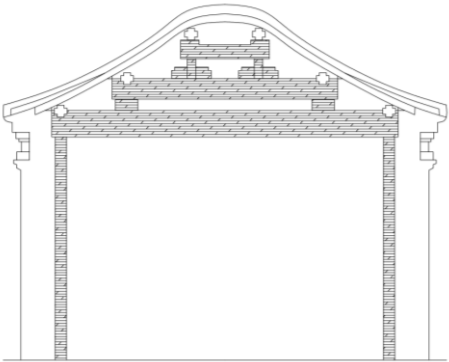


Figure 7 Yongjuxiang Tea House.

a Photo credit: Author's own drawing.

The building materials used in Qixian Zhaoyu Ancient City are mainly brick and wood, in addition to timber, stone, masonry, soil ash, and other common materials. The main structure of the dwellings is the traditional raised-beam type, as shown in "Figure 7", which adopts a layer-by-layer approach, staggered arrangement of beams and columns, and mortise-and-tenon joints between members, making the structure more stable and with a certain degree of seismic effect. (As in "Table 1")

in the ancient city, the imprints of commercial activities have also been preserved. For example, the relief carvings on the window edges depict teapots and other elements related to the history of the Wanli Tea Road, symbolizing the tea merchants' deep affection for the tea trade. Through the development of activities such as tea peddling, the cultures of various places were integrated into the owners' visions and understandings, making the compound more personalized, forming a unique

compound culture, promoting exchanges and fusions between cultures, and leaving a valuable historical property for future generations.

### 4.3 Layout genes

Qixian Zhaoyu's ancient city as a whole is shaped like a rectangle; As shown in "Figure 8", the distance between east and west is slightly longer than the distance between north and south, with a circumference of about three kilometers because its southeast corner is slightly missing, such as the shape of the black gauze cap in general, so it is named the "black gauze cap."

The cross-street layout is the core of the spatial structure of the ancient city of Qixian; the east, south, west, and north of the four streets cross perpendicular, not only constituting the skeleton of the ancient city but also making transportation and distribution of commercial trade more convenient. This pattern of no obvious inferiority and superiority position reflects the ancient equality and justice of Confucianism. At the same time, Qixian

Ancient City, in the pursuit of "people, heaven and earth, architecture," harmony and unity, also shows its unique charm. The spatial pattern and landscape creation in the ancient city reflect the idea of the unity of heaven and man. The Chamber of Commerce, the Temple of Literature, and the Temple of Martial Arts reside in the core of the city, and the regime takes a backseat, allowing the ancient city to maintain traditional rituals while showing a unique layout concept.

The width of the streets is designed to be about 6-7 meters, enough to accommodate the coming and going vehicles and pedestrians. These streets lead to the four gates of the ancient city, dividing it into four areas: northeast corner, southeast corner, southwest corner, and northwest corner. In the ancient city, twenty-eight streets and seventy-two ohs intersect with each other, forming a complex traffic flow. As shown in "Figure 9", the four main streets, namely, East, South, West, and North, are lined with stores and serve as prosperous places for commercial development.



Figure 8 Qixian Zhaoyu ancient city aerial view.

a Image Source: 'Qixian County Annals '



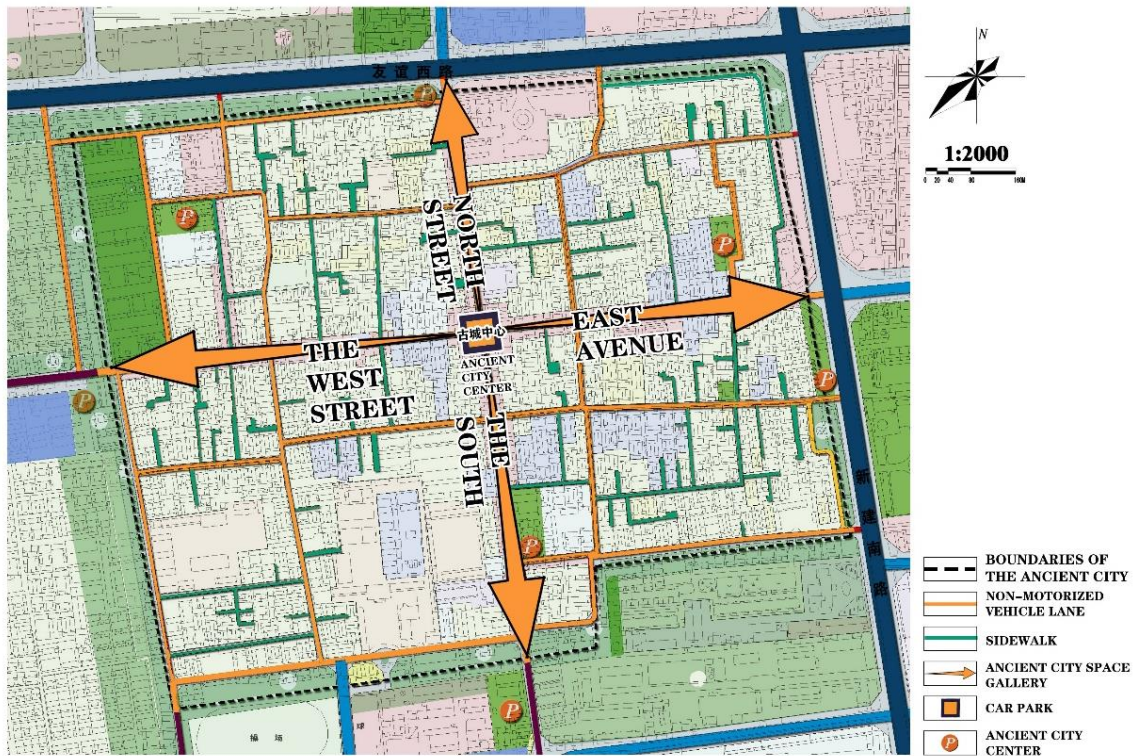


Figure 9 Qixian Zhaoyu Ancient Town Plan.

a Photo credit: Author's own drawing

## 4.4 Cultural genes

### 4.4.1 Behavioral Culture

The ancient city is divided into two main time periods to carry out various cultural activities as shown in "Table 2". First, daily activities; local people do not have specific recreational activities. In the ancient city, simple pleasures such as chatting and playing chess are enjoyed by a wider range of people. The theater inside the Drainage House also showcases the entertainment life of rich merchants and property owners for future generations. The theater troupe is generally established by wealthy merchants and property owners through the commercial influence of larger, more typical poly pear orchards, Qing pear orchards, Ji pear orchards, and so on. Ticket clubs were also developed during the same period and were composed of people from various classes. These people would often gather together for entertainment and sparring, adding a touch of fun to their busy lives.

Secondly, during every New Year's festival, a variety of cultural performances take place in the streets, such as dragon lanterns, carrying sticks,










lifting the pavilion, pouting sticks, stilt walkers, lion dance, the two ghosts wrestling, Zhangweng back Zhangwao, running dry boats, bamboo horses, bulls fighting tigers, knife and stick dance, stepping on the street, the moonlight monks teasing Liu Cui, pouncing on butterflies, and so on. After the 15th day of the first lunar month, merchants will prepare various kinds of beautiful lanterns, symbolizing wealth and prestige, and hang the cloth to hold riddles, which are very rich and interesting. Additionally, the temple fair is an indispensable activity in the life of the people. The main traditional temple fairs held every year are the Guandi Temple Fair, Chenghuang Temple Fair, Taiqingguan Temple Fair, and so on. The main functions of these festivals are to offer sacrifices and to pray for the return of wishes.

In addition, Qixian's food culture is more famous for knife-shaved noodles, pick tip, pull the piece, Tsuo Chagdou, brine noodles, eight bowls and eight dishes, sesame oil, and so on. Qixian is located in the hinterland of Shanxi Jinzhong Basin; the people and the spirit of the land, as well as the development of Culture and art, have unique conditions that are known as the "township of paper-cutting" reputation. Qixian paper-cutting became one of the folk crafts in the middle of the

Qing Dynasty and became increasingly prosperous. Qixian paper-cutting, as a provincial intangible cultural heritage, has rough, concise, simple

characteristics of allegory, an association way to express people's aspirations for a better life.

Table 2. Qixian Zhaoyu ancient city behavior culture type information table

Daily customs	Festivals and customs	Food culture
		
Play chess	Qixian back cudgel	Qixian Eight Bowls
		
Theater of the Qu Family Compound	Lion dance	Qixian bacon
Traditional handiwork	Local theater	Martial arts boxing
		
Qixian paper-cutting	Qixian Jin opera	Dai's Xingyiquan (Chinese martial art)

a Image Source: Internet.

4.4.2 Culture of Mind

As shown in “Table 3”, the cultural essence within the ancient city is predominantly manifested in four aspects: merchant gang culture, family culture, sacrificial beliefs, and character worship. The emergence of business in Qixian during the Ming Dynasty is closely linked to the implementation of the open-middle law system; within this context, merchant gangs and the Wanli Tea Road emerged as the primary transportation force. During the Ming and Qing Dynasties, Qixian merchants expanded globally, gradually developing a profound respect for commercial practices. Additionally, the ancient city saw the formation of various chamber of commerce organizations. These chambers primarily managed and regulated price management, mediation of store conflicts, and fair competition. Such management, to a certain extent, mitigated cutthroat competition and largely upheld

industry operations, reflecting the ancient city's business community's pursuit of harmonious and integrity-driven business principles. The business scope of Qixian's merchant gangs was extensive, spanning tea houses, money banks, pawnshops, ticket offices, grain stores, as well as medicinal herbs, footwear, headwear, prepared foods, jewelry, stationery, mountain goods, dyeing and weaving, and other industries.

The rise of famous families such as the Qu family, the Qiao family, the Duan family, the Dai family, and so on in the Ming and Qing Dynasties demonstrates the characteristics of mixed residence of many surnames and the continuation of many lineages. Most of the family members were businessmen, their existence based on marriage and kinship, contributing to the formation of Confucianism and the culture of righteousness and tradition. The street stores in the ancient city contain the history of each family's business



development, with the remaining genealogy, trade names, plaques, etc., serving as cultural artifacts passed down from generation to generation, symbolizing the identity of different families. Among the sacrificial beliefs, the most significant place of worship is the Temple of Literature. In the past, successful candidates in the imperial examinations were required to pay homage to Confucius at the Temple of Literature, a custom that continues to this day. In addition to sacrificial beliefs, there is also the practice of character worship. Shrines erected in the ancient city honor local heroes, virtuous officials, and other figures, revered by the people, as seen in the Wang Weichou Xian Ancestral Hall during the Ming Dynasty.

Qixian Zhaoyu Ancient City's landscape genes and ancient city culture are closely intertwined with evolving cultural, family, and ritual beliefs. These elements, along with the architecture, street patterns, and residents' way of life, have significantly influenced the ancient city, highlighting the crucial role of landscape genes in its cultural heritage and development.

Shangbang Culture is an important part of the Culture of Zhaoyu Ancient City in Qixian County.

It was once one of the birthplaces of the Jin merchants, where commercial activities flourished, and the accumulation of wealth by the merchants also influenced local architectural styles and lifestyles. For example, many large mansions and stores adopt the typical Shanxi architectural style, while the style and layout of these buildings reflect the changing Culture's pursuit of wealth, power, and social status.

Family culture is also an important feature of the Culture of the ancient city of Zhaoyu in Qixian County. This family culture had an impact on the architecture and street pattern of the ancient city, and many of the large mansions were built and maintained by multiple families, a partnership that reflects the spirit of mutual aid and a sense of unity in the family culture.

Ritual beliefs are also an important part of the Culture of the ancient city of Zhaoyu in Qixian. There are many temples and shrines dedicated to different deities and ancestors. These religious beliefs and rituals had an impact on the architecture and street pattern of the ancient city, and many streets and squares were built around temples and memorial temples, reflecting the importance of ritual beliefs in the Culture of the ancient city.

Table 3. Qixian Zhaoyu ancient city mentality culture type information table

Shangbang culture	Family culture	Sacrificial belief
		
Merchant gang trade	Qu family compound	Sacrifice at the Temple of Confucius

a Image Source: Author's own photo

5. QIXIAN ZHAOYU ANCIENT CITY LANDSCAPE GENE MAP CONSTRUCTION

For the in-depth study of landscape genes of Zhaoyu Ancient City in Qixian County, understanding its external characteristics and internal causes is indispensable. Thus, in accordance with the "internal uniqueness, external uniqueness, local uniqueness, overall advantage" principle, four identification elements and 18 identification indicators are selected from both material and non-material perspectives to construct

a landscape gene map of Qixian Zhaoyu Ancient City. ("Table 4")

Table 4. Landscape gene map of Zhaoyu ancient city in Qixian County

Gene category	Recognition factor	Secondary recognition factor	Identification results
Material landscape genes	Environmental gene	Environment	Flat terrain with rivers
		Plane configuration	centripetal
		Layout	Multi-axis canalized layout, single-axis layout
	Architectural gene	Building materials	Brick and wood, timber, stone, masonry, earth and plaster
		Local ornament	Brick carving, wood carving, stone carving, color painting decoration, ceiling decoration, niche decoration
		architectural tone	Mostly dark gray
	Layout genes	Patterns of Layout	black gauze cap
		Street traffic	Twenty-eight alleys, 72 Gedao
	Intangible landscape genes	Behavioral Culture	Daily Customs: Greetings, Chess, Theater, Ticket agency
			Festivals and customs: dragon lanterns, carrying a stick, lifting a pavilion, pouting a stick, stilts, lion dance, two ghosts wrestling, Zhangweng carrying Zhangwao, running a dry boat, bamboo horses, bulls fighting tigers, knife and stick dance, stepping on the street, the moonlight monks teasing Liu Cui, pouncing on butterflies, temple fairs, riddles, and so on.
			Food culture: knife-shaved noodles, picking tips, pulling slices, Tsuo Chagdou, halo-halo noodles, eight bowls and eight dishes, sesame oil
			Traditional crafts: paper-cutting (intangible cultural heritage)
		Culture of Mind	Local Opera: Qitai Yangge, Jin Opera (Zhonglu Bangzi)
			Martial Arts Style: Dai's Xingyiquan
			Shangbang Culture: reverence for business habits, the pursuit of harmony and integrity
			Family culture: respect for Confucianism and education, righteousness, and the combination of business and government.
			Rituals and Beliefs: Belief in Confucius, Confucianism, City God Sacrifice
			Character worship: honoring local heroes and wise officials

## 6. QIXIAN ZHAOYU ANCIENT CITY LANDSCAPE GENE EXISTING PROBLEMS AND PROTECTION AND INHERITANCE STRATEGY

### 6.1 Qixian Zhaoyu Ancient City Landscape Gene Existing Problems

#### 6.1.1 Environmental Genetic Issues

The environment around the ancient city appears cluttered, with a noticeable disparity in

style between the ancient city and its external surroundings, resulting in a lack of overall coordination. In recent years, the economy of Qixian County has also experienced some development. Due to the needs of the population's life, the environment around the ancient city is also evolving. Commercial buildings and various types of stores are expanding, causing the ancient city to seem out of place. ("Figure 10" and "Figure 11")



Figure 10 Qixian Zhaoyu Ancient City around the stores.



Figure 11 Qixian Zhaoyu Ancient City around the building map.

a Image source: Baidu Street View Map.

### 6.1.2 Architectural Genetic Issues

In the Zhaoyu ancient city, property rights were more prominent within the house, coupled with greater mobility for the population. The previous protection system within the ancient city is not perfect; some units of property owners have engaged in private construction behavior, damaging the original pattern of the compound, and increasing the difficulty of protecting the current buildings. At the same time, due to the backwardness of people's concept of protection, many doors, windows, and walls in the courtyard have been damaged to a certain extent due to years of disrepair, as shown in "Figure 12". During the repair process, replacing the old with the new and ignoring the original cultural connotations of the buildings have had a certain negative impact on the architectural style of the ancient city ("Figure 13").



Figure 12 Ancient city buildings with broken windows and doors.



Figure 13 Architectural styles with large gaps.

a Photo credit: Author's own photo.

### 6.1.3 Layout Genetic Issues

The way of life of the residents in the old city has changed dramatically as a result of socio-economic development. The streets and roads that were once convenient for the passage of cars and horses can no longer meet the needs of modern residents. A large number of cars, trucks, tricycles, etc., and pedestrians walk each other, resulting in a variety of traffic congestion events, not only affecting people's lives but also directly affecting the development of tourism in the old city. Some of the roads are uneven, affecting travel and aesthetics. The infrastructure in the Old City is very backward, and there is no heating in the Old City in winter, making it difficult for tourists to live there and limiting the development of tourism. As shown in "Figure 14" and "Figure 15", landscape nodes are missing, there is no space to stay, and sundries are piled up and placed indiscriminately. Inside the ancient city, wires are hanging everywhere, which is not beautiful and has potential safety hazards. The way of life of the residents in the old city has changed dramatically as a result of socio-economic development. The streets and roads that were once

convenient for the passage of cars and horses can no longer meet the needs of modern residents. A large number of cars, trucks, tricycles, etc., and pedestrians walk each other, resulting in a variety of traffic congestion events, not only affecting people's lives but also directly affecting the development of tourism in the old city. Some of the roads are uneven, affecting travel and aesthetics. The infrastructure in the Old City is very backward, and there is no heating in the Old City in winter, making it difficult for tourists to live there and limiting the development of tourism. As shown in "Figure 14" and "Figure 15", landscape nodes are missing, there is no space to stay, and sundries are piled up and placed indiscriminately. Inside the ancient city, wires are hanging everywhere, which is not beautiful and has potential safety hazards.



Figure 14 Miscellaneous debris littering the interior of the Old City.



Figure 15 Rugged roads and cluttered power lines in the old city.

a Photo credit: author's own photo

#### 6.1.4 Cultural and Genetic Issues

The main problems in the area of Culture include the lack of publicity and insufficient promotion of traditional Culture in the region. Moreover, there is a serious aging population, and

many young people have a diminished sense of identity with traditional skills, leading to the loss of many skills of the intangible cultural heritage. Additionally, the preservation and transmission of intangible cultural heritage also require a large amount of financial investment. Although efforts have been made by the government and all sectors of society to invest in the protection of cultural heritage, due to the large scale of the ancient city, funds are needed to maintain various aspects, such as building repairs, organizing activities, and improving facilities. Qixian Zhaoyu Ancient City Landscape Gene Conservation and Restoration Strategy

#### 6.1.5 Improving the Surrounding Environment and Strengthening the Style of the Old City

In the governance of the environment in and around the ancient city, efforts can be made from three aspects: timely cleanup of piles of garbage, remediation of sewage discharge, and improvement of air quality. The surrounding environment should be regularly cleaned, the green area increased, and the air quality improved. Green landscapes should be enhanced in the main landscape nodes to ensure the beauty and cleanliness of the ancient city and its surroundings. Surrounding buildings should adhere to unified planning with distinctive style characteristics to ensure the coordination of regional landscape aesthetics.

#### 6.1.6 Upgrading the Quality of Streets and Improving Transportation Facilities

Vehicle traffic restrictions are implemented for vehicles in the ancient city to reduce traffic congestion within the city; the peripheral roads of the ancient city are improved to optimize the traffic flow so that tourists can conveniently enter and exit the ancient city; the streets are improved, broken pavement is repaired to reduce the risk of travel; necessary landscape nodes are increased, and open space for tourists to stay is set up in the right place.

#### 6.1.7 Strengthening Compound Management and Protecting the Original Pattern

Strengthening the management of the population in the ancient city involves strictly limiting arbitrary additions to the building and protecting the original layout of the compound. The damaged parts of the compound should be repaired,



following the protection method of repairing the old as the old, respecting the original style of the ancient building, and protecting its historical appearance.

### 6.1.8 Strengthening Cultural Heritage and Organizing Cultural Events

Regularly organize performances, lectures, exhibitions, and other activities related to the Culture of the ancient city, with a call for the participation of citizens and tourists to deepen their understanding and recognition of the Culture of the ancient city; encourage the development of cultural industries by opening a variety of stores related to tea culture, merchant culture, and other historical and cultural aspects relevant to the ancient city. This will form a cultural tourism system to attract tourists for sightseeing tours, increase the income of nearby residents and the government, promote the development of the economy of Qixian County, and allocate more funds to the construction and improvement of the ancient city. More funds should be allocated for the construction and improvement of the ancient city.

## 7. CONCLUSION

Wanli Tea Road brought the business climate to Qixian ancient city; the merchant gangs created a number of famous trade names, and different cultures were injected into the compound of Jin merchants through trade activities. At the same time, with the continuous development of the Wanli Tea Road, traditional folklore and so on from Qixian ancient city were also promoted to other regions to exchange cultures. The landscape gene of Qixian Zhaoyu Ancient City has an important historical background and far-reaching influence on the Wanli Tea Road and its impact. It is an important distribution center of tea culture and the birthplace of Jin culture, which makes Qixian Zhaoyu Ancient City an important part of the history and Culture of Wanli Tea Road. Qixian Zhaoyu Ancient City is an essential node of the Wanli Tea Road; its material landscape genes and intangible landscape genes have witnessed the rise and fall of the trade road. With the practice of the "Belt and Road" development strategy and the "Wanli Tea Road" heritage, the value of the ancient city of Qixian should receive more attention and excavation. This paper, through the Qixian Zhaoyu ancient city landscape gene system identification and extraction, builds the ancient city of landscape gene database, according to the ancient city is

currently facing the problem, puts forward the landscape gene protection and inheritance of the path and method, helping for the Qixian Zhaoyu ancient city settlement landscape revitalization and protection to provide theoretical guidance. However, due to the very rich historical and cultural resources of the ancient city of Qixian, there may be deficiencies in the extraction of landscape genes of weaker value in the ancient city, which requires deeper excavation and research.

## REFERENCES

- [1] WANG Weifei, LI Wenrong, PAN Junyi et al. Progress and Prospect of Landscape Gene Theory Research in China [J]. Journal of Yunnan Agricultural University (Social Science), 2023, 17(06): 122-130.
- [2] LIU Yuan, XU Yueying, TIAN Yonggang. Research on landscape genetics of traditional villages in Qinba mountainous area--Take the example of the old county town village of Houbizi Town, Zhouzhi County [J]. Urban Architecture, 2023, 20(14): 100-102+119. DOI:10.19892/j.cnki.csjz.2023.14.25.
- [3] Zhu Huihui. Study on Spatial Changes and Renewal of Zhaoye Old Town in Qixian County [D]. Shanxi Normal University, 2023. DOI:10.27287/d.cnki.gsxsu.2022.000174.
- [4] Liu Sihang. Research on Commercial Class Historic Buildings in the Ancient City of Qixian, Shanxi [D]. Hunan University, 2019.
- [5] HU Ziyue, CAO Wei. Landscape characterization of Jiaoxi water township under landscape gene recognition theory [J]. Garden, 2024, 41(02):46-54.
- [6] Huang Xinyi, Geng Hong. Landscape Gene Identification and Utilization of Enshi Tujia Traditional Bazaar [C]// China Society of Urban Planning. People's City, Planning Empowerment - Proceedings of the 2023 China Annual Conference on Urban Planning (09 Urban Cultural Heritage Protection). [Publisher unknown], 2023: 16. DOI:10.26914/c.cnkihy.2023.050258.
- [7] JI Jingjuan, GAN Weimin. Research on Landscape Gene Identification and Inheritance Path of Traditional Villages in Zuojiang World Heritage Area [C]// China Society of Urban Planning. People's City, Planning Empowerment - Proceedings of the Annual

Conference on Urban Planning in China 2022  
(16 Rural Planning). [Publisher details], 2023:  
12. DOI:10.26914/c.cnkihy.2023.046086.

- [8] Liu Yuzhi, Zuo Li. Research on Conservation and Renewal of Ningfang Ancient Town in Chongqing under the Perspective of Landscape Gene [C]// Chinese Society of Landscape Architecture. Proceedings of the 2022 Annual Conference of the Chinese Society of Landscape Architecture. China Architecture Industry Press, 2023:11. DOI:10.26914/c.cnkihy.2023.002263.
- [9] Zhang Weixin. Research on historical buildings of residential category in the ancient city of Qixian, Shanxi [D]. Hunan University, 2019.
- [10] LEI Chengxuan, ZHOU Jing, YANG Xia. Extraction and mapping of landscape genes in Dali Xizhou ancient town [J]. Industrial Design, 2023(07): 140-143.
- [11] YAN Hongyu, ZHOU Yanping, JIA Qi. Research on landscape genetics of traditional settlements based on GIS technology [J]. Urban Architecture Space, 2023, 30(07):84-85.