

# The Waterfront Space Planning of Urban Historical River based on Cultural Context: Taking Xi'an Zao River Park as Example

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**Abstract.** Urban river system is important carrier of water resources and water ecology, also a witness of urban historical context and an important part of urban culture, especially for ancient historical capital Xi'an. The research selects the actual site, established the base planning model, analysed and demonstrated the main design levels of the waterfront park, made it closely related to the historical context, and obtained the implementation path of generating effective schemes. From the perspective of context continuation, the study puts forward that the cultural context of water is an important part of urban context, the cultural context of water is an important content of urban heritage protection. This study proposes that in urban planning and the design of urban river system waterfront environment, we should respect and pay attention to the protection and continuation of historical context, fully excavating the historical information, then generate the planning and display design scheme. Taking Xi'an Zao River Waterfront Park design as an example, this study analysed the historical context of Zao River, excavated the elements reflecting historical information, designed the waterfront coastline and road traffic, displayed the historical context of Zao River in the way of historical path, and retained the cultural information of urban historical water system in a friendly and interactive way. The research and example scheme generation process is significant to relevant waterfront environmental planning.

## 1 INTRODUCTION

Xi'an is a national famous historical and cultural city, and has glorious scenery "Eight Rivers around Chang'an". It is also a typical city in semi-arid areas shortage of water resources. Therefore, for such a situation, the river system with strong historical attributes is extremely precious. The river flows the epic of the city and is an integral part of the rich historical and cultural heritage. The waterfront space is a witness and record of the city's history and confirms the changes of the city's development. The planning and design of historical water system waterfront has important meaning to highlight the unique regional cultural characteristics of the city, and is a method to intuitively understand the city, a carrier to carry on the past and communicate the future, and the support of urban civilization. Each city's cultural construction has its own unique model, in which it has its own structure and path. The use of

context theory can enrich the waterfront landscape space planning and design (Shi, 2013).

## 2 THE CONTEXT OF RIVER

The concept of culture context was proposed by American postmodern architectural theorist Robert Venturi in the field of urban research in the 1950s. It is also the first time that the concept of context is connected with the urban environment. In the 1960s, the American Cornell School put forward the concept of "contextualism", emphasizing the corresponding context in urban construction and reflecting the historical tradition. Context is the sum of a dynamic and internal relationship among people, urban environment and social and cultural background in the process of urban historical development (Miao, 2005).

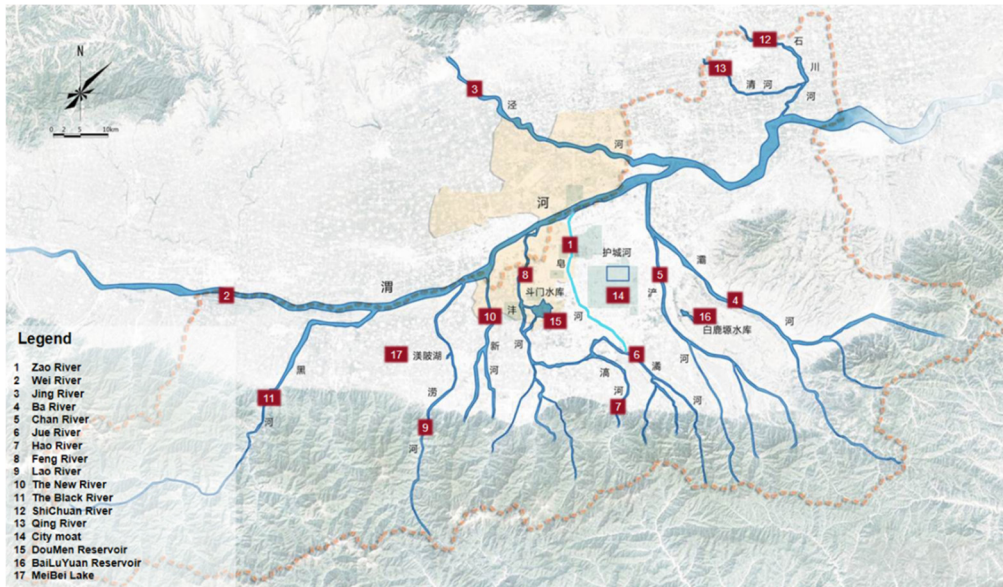


Figure 1: The location of “Eight Rivers around Chang'an” and Zao River.

Urban context is the sum of all material and spiritual wealth created by people living together in the same area. Different natural conditions and living conditions lead to different cultural temperament. Only by protecting urban context will inherit and continue the historical memory by each generation (Gao, 2016). The material form of urban culture context is reflected in the natural environment that natural geography and hydrogeology are important components of urban context. Human gave urban natural environment humanistic connotation by using and transforming the natural environment. For example, the historical river and lake water system around Chang'an is an important element of Xi'an urban culture context. As shown in Figure 1, the location of Eight Rivers around Chang'an and Zao River is shown.

Historical water system is a natural river and lake system or artificial canal system which has great historical significance to the formation and development of a city, plays a decisive role in the city location and relates to the historical changes of the city (Guo, 2010) (Wu & Liu, 2017). Historical water system is the result of human long-term practice of urban water conservancy, which directly affects the location, shape and pattern of the city. It has rich historical and cultural landscape view, contains a large amount of historical and cultural information, witnessing the process of urban development and decline, and is the carrier of urban history and culture (Han, 2019), and also affects the spatial layout, flood safety, open space, residents'

activities ecological security and other aspects. It is an important way to inherit the city culture to protect the culture of historical water system and explore the characteristics of waterfront landscape. Water management is a traditional method in ancient China and people have a deep understanding of water in the construction of environment. Only by correctly interpreting the water culture can we inherit and continue it. Water and city are constantly changing and creating historical culture together (Duan, 2013). Water culture has its own characteristics, so it is necessary to protect and create unique water culture to keep the cultural context of the city inherit.

Some waterfront landscapes in China lack of systematic planning. Existing planning lacks of the overall concept and design theme, just stacking the elements of each landscape, lack of landscape continuity. Some ignore the local climate, environment, history and local characteristics in the design process, resulting in the cultural deficiency (Diao, 2020). The current situation of river landscape development in China can be summarized as follows (Yang, 2014): the awareness of "ecological construction" is enhanced, but there are still some practices which violate ecological principles, such as "cutting the bend and straightening", "cement lining"; The design of waterfront green space and open space does not fully consider the user's needs, and the utilization rate is not high; Lack of consciousness of protection of historical landscape, insufficient excavation of historical culture and regional characteristics, and

serious assimilation of design; The waterfront features were not highlighted. The successful river landscape can be used by designers to utilize the original historical and cultural resources along the river, retain the special nature of existing places, and have enough respect for the local cultural connotation, so as to make the waterfront landscape show strong regional characteristics and historical and cultural atmosphere (Yang, 2014). There are cases in foreign countries that classify historical waterfront areas into the heritage corridor system for overall protection. For example, some canal heritages include waterfront areas in the protection and display of heritage corridors, such as the MIDI canal in France, the central canal in Belgium and the Lido canal in Canada.

Urban waterfront landscape is the recorder of urban changes, which has important cultural value, and could reflect the characteristics of local water system, displaying urban history and culture, establishing the sense of belonging of urban residents, meeting their spiritual needs and stimulate creativity.

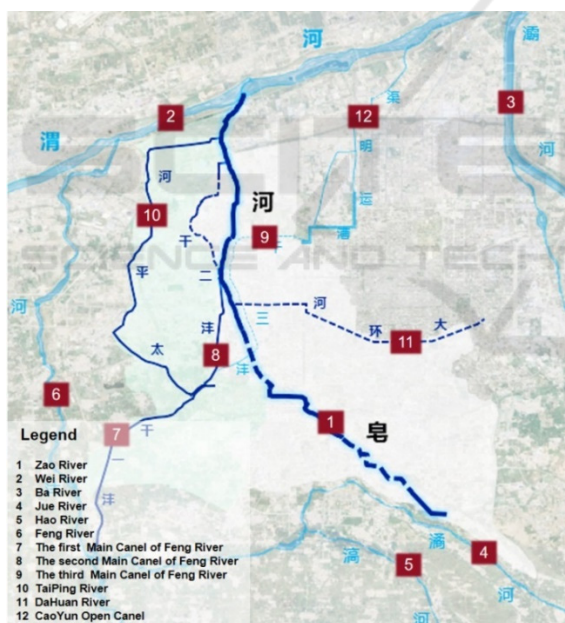


Figure 2: The location of Zao River and its tributaries.

### 3 THE CULTURE CONTEXT OF ZAO RIVER

#### 3.1 The History of Zao River

Zao River is one of the important rivers in Xi'an, and is also the primary tributary of Wei River. It

originates the northern slope of Qinling Mountains in Shuizhai Village of Chang 'an district in Xi'an, flows through Shendian and Weiqu of Chang 'an district, enters the urban area of Xi'an at Xiatapo, and enters Wei River from Ducheng, Zhangbagou, Yuhua, Beishiqiao, Sanqiao Town, Yanquemen, Liucunbao to Caotan Farm, with a total length of about 30km. The length in urban area of Xi'an is about 27km and the basin area is about 300km<sup>2</sup> (Dong et al., 2012). Zao River passes through Zhangbagou and Yuhua area in Xi'an, leaving different characteristic and historical legends. The river location is shown in Figure 2.

Zao River has a long history with natural and human geography characteristics and is one of the historical symbols in Xi'an. Zao River was the ancient channel of Jue River, which was excavated as a canal for transporting wood for government. Jue River is divided into two branches near Niutou Temple. The north is Zao River and joins with Hao River in the west.

The earliest record of “Zao River” in the literature was during the Qianlong period, “Cao River” flowed to the vicinity of Yong Gate of the Han Chang'an City site and turned northwest, which was locally called “Zao River Bend”. It was recorded in “Continued records of Xianning and Chang'an Counties”: “Zao River is the downstream section of Jue River, and it enters from Huangzipo of Xianning County and flows 7.5km northwest into the moat. 15km away is the site of Han Chang'an City, which is called Zao River bend and flows 30Li northeastward into Wei River.”

The “Xijing Planning” (1941) written by the Xijing Preparatory Committee stated: “The eighth is Zao River, also known as Algae River. Its upstream is Jue River, flow northwest to Zhangba Gou water gate, divided into two: one flow northeast into city known as Xilong canal, or named Tongji canal; another one discharges water from the gate to south turning from the west to the north, which is the main form of Zao River, and enters Wei River through the ancient city of Han Dynasty. The downstream often silt because of the irrigation in the upstream.”

#### 3.2 Development of River System Context

As an important part of urban water systems, the historical water system has been gradually transformed into ditches, landfilled into dark channels or disappeared due to urban construction in the urban development process. The water surface rate in the urban built-up area has gradually

decreased, water pollution is serious, the ecological function of rivers is lost, and the water network structure is broken (Wang, 2020), which affects the connectivity of water system and the display of historical culture of water system.

Xi'an is a national historical and cultural city, and the historical water system is closely related to Xi'an urban development and pattern, which is an important part of Xi'an culture context. Although it has such rich cultural heritage, some historical water systems are gradually losing their cultural value due to the lack of planning integration and display, so the context of urban water systems is difficult to continue. Zao River is also one of the representatives of such historical water systems, as shown in Figure 3. Due to the lack of planning integration and display, the ecological function of Zao River is basically lost, the excavation of water culture is not enough, and the lack of ecological landscape construction, the current construction of water culture cannot meet the needs of urban quality improvement and residents' living entertainment.



Figure 3: Status of Zao River.

With the increasing attention from the protection and inheritance of urban historical culture context, the historical heritage protection objects have gradually evolved into the sustainable protection of the overall historical environment in recent years. At the same time, the protection of water cultural heritage has received more attention from society, such as the Grand Canal heritage corridor protection (Xi, 2012), the construction of Beijing water system heritage corridor (Wang, 2012) and so on. As part of urban water cultural heritage, historical water systems should be given corresponding protection.

At present, the urban master planning and various special planning are combined with urban green spaces, integrating the land use, giving space to waterfront areas, planning landscape for the historical water system and the space along it, so as to carry the historical culture and local characteristics. The master plan of Xi'an proposes to

coordinate the urban water system with the river basin and regional water system under the full consideration of the requirements of urban flood control and drainage and tourism landscape, taking into account the requirements of water safety, water resources, water environment and water culture.

In view of the current situation of Zao River site, the ecological method is used to supplement water, so as to realize the water cycle of urban landscape and improve the water quality of urban landscape, and to create the original ecological leisure sightseeing wetland park, to make it an urban waterfront open space that shows and maintains the natural ecology, and inherits the historical water system context, and respects humanity. The park site is shown in Figure 4.

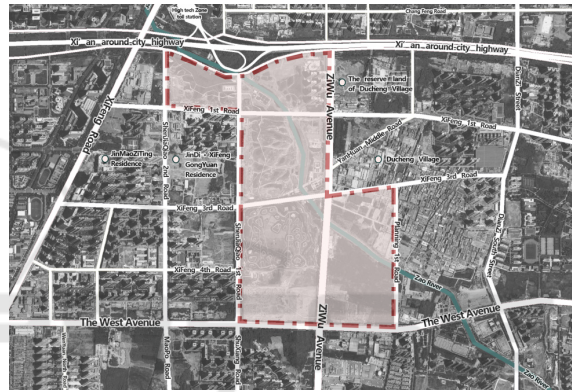


Figure 4: Planning range of the ecological park of Zao River.

## 4 PLANNING CONCEPT AND EARLY CONTROL

### 4.1 Regional Background and Planning Concept

As an important part of urban spatial system, the urban historical water system has a significant impact on the overall layout, form, site selection and characteristic style of the city (Han, 2019). Due to the rapid development and spread of the city, the river water system space was occupied by urban space, and the urban historical water system is seriously damaged, and the hard treatment of the coastline is based on the impermeable paving method around, which also seriously destroys the ecology of the water system. The urban master plan has adjusted the land use in this area to optimize the function of the park and its relationship with the surrounding lands, as shown in Table 1 below.

Table 1: Comparison of district planning.

Land Usage	District Planning	After Adjustment	The Variation Quantity
	Area(ha)	Area(ha)	Area(ha)
Residential(R2)	0	33.99	33.99
Cultural Facility(A2)	0	1.00	1.00
Sport(A4)	0	5.00	5.00
Commercial Facility(B1)	10.79	41.10	30.31
Green Land for Park(G1)	103.05	24.28	-78.77
Green Land for Environmental Protection(G2)	55.23	63.70	8.47
Transport Facility (S)	25.56	25.56	0
Total	194.63	194.63	0

The study carried out preliminary positioning and element control started from two important elements which are context and ecology.

From the perspective of culture context, the design respects the inheritance of history and culture. The design also needs to fully analyze the cultural and historical conditions of the city, integrating design with history and culture, and retain site memory. Unique historical changes and cultural development are rich in historical heritage and cultural connotation, which are the key to construct a cultural corridor with urban characteristics and are important background for construction. To continue the context, the attention should be paid to urban characteristics and avoid homogeneous waterfront space and landscape design. The significance of regional culture is reflected in urban characteristics, so the design should reflect and display the context from multiple levels and angles such as space to form and express the culture context with waterfront space characteristics.

From the perspective of ecology, following the important principles of ecological civilization is the premise of ecological security and water security. The waterfront area is a specific area of the city, an area with a certain width connected between land and water in the city. The water system and its surrounding areas are taken as the research object to ensure ecological continuity and ecological security. At the same time, the water system has important functions of urban disaster prevention and reduction, which has great significance to urban safety pattern.

Waterfront is a green opening space close to the water area. The planning and design aiming at ecology, recreation and aesthetics to realize urban waterfront spaces renew and reform. It is conducive

to the sustainable development. For the water system with historical value, while continuing the historical information, the design should also be given new functional value, so as to provide high-quality conditions for urban environment and residents' life. For example, most of the greenways in New York were built on the Hudson River, and each tour route relies on natural and cultural landscape resources to create characteristics and show urban vitality (Yu, 2012). In the planning and design, designers should pay attention to history and the present at the same time and pay attention to the interaction between the historical water system and residents, rather than forming two isolated systems, so as to maintain the hydrophilic vitality of the urban water system.

## 4.2 Preliminary Control of Planning and Design

The early control of planning and design is mainly carried out from the perspective of things and people. The subject of things is the historical water system and waterfront environment, and people aspect is mainly to control people's feelings and behavior.

The waterfront design of historical water system needs to respect the historical attributes of water system, including its location, function, shape, style, etc. The basic principle of planning is not to change the location and trend of the original river channel, then try to make use of it locally. The design should fully analyze the topography of the waterfront area, skillfully use the elevation difference in combination with the geological conditions, to carry out the plane and vertical planning and design, so as to form a good relationship between the road arrangement and the contour line, which is convenient for driving and

walking. At the same time, the design should fully analyze the waterfront section, on one hand to form a connected and effective transportation system, on the other hand to comply with the growth law of waterfront vegetation and reasonably layout ecological plants.

The waterfront environment of different historical water systems is different. Such as the water system with irrigation channels as the main body. The elevation difference of terrain around the channel is generally not as large as that of natural water system. Topography is one of the visual manifestations of identifying artificial channels and natural rivers. Therefore, the elevation difference of waterfront topography should also be respected, and its historical real environment should be maintained. Observing the river width and depth of the water system can also distinguish whether it is a transmission and drainage channel or a natural river. Taking Zao River as an example, as an irrigation channel, its width is relatively narrow and there is no washed floodplain around. In the design, the attributes of river water system should be respected as much as possible. While ensuring the hydrophilic concept, it should not be designed to broaden the river channel and increase the types of waterfronts.

For the waterfront planning and design of urban water system, it is also needed to pay attention to the subject of human. Public facilities often ignore public participation, lack of humanistic care and ignore people's needs (Diao, 2020). In the design, we should pay attention to the guidance of human behavior, pay attention to the setting of stay point, affect human behavior through the design of path and node, and stimulate the vitality of the site by activating human behavior. Therefore, it is necessary to accurately locate the path in the planning and design. Firstly, the site landscape resources shall be defined from the human starting point, including natural landscape, artificial landscape, cultural landscape, etc., including the landscape resources forming waterfront characteristics, such as landform, water body, shoreline, historical and cultural scenic spots, ground markers, interactive landscape, plants, historical sites, etc. The design should fully exploit and utilize these contents. Secondly, the design should define the influencing factors in the design, extract the main influencing factors, that is, the main body of the display, like main water body related design, and then determine other factors, such as water surface environment, historical and cultural nodes, etc.

Through the dual control of things and people, the scheme shows the cultural characteristics of cities and historical water systems, to realize the

interaction between people and historical culture. In the waterfront design of Zao River, put human elements in a large mountain and river environment view, to reserve sight corridor from Qinling Mountains to Zaohe River; Put human elements in a small view, by displaying Zao River itself, to show the grand scenery of "eight rivers around Chang'an" river system.

## 5 SCHEME DESIGN OF ZAO RIVER WATERFRONT PARK

### 5.1 Waterfront Shoreline Design

In order to meet different functional and spatial needs, different revetment types are created through the design by different slopes and plant communities. The design uses the near-natural treatment method to create natural ecological revetment, rationally utilize the ecological environment of floodplains, and shape the ecological natural environment, to stimulate waterfront vitality. In the scheme generate process, ecology arrangement, flood control, landscape and other aspects, should be considered to achieve the residents wishes that living in the city but yearning and feeling the nature, providing waterfront environment comfortable natural environment.

The waterfront environment includes water ecology and green space ecology. Zao River is a channel in the planning area. In the landscape transformation and upgrading design period, combined with the specific functional zoning of park planning to reform the shoreline, to create natural ecological revetments for stimulating waterfront vitality. The natural stone beach, grass slope revetment, aquatic plants revetment and other forms could be used.

In addition, the southwest part of the planning site has elevation difference. The scheme uses platform garden to connect shoreline and the river, combined with the concept of Low Impact Development to design rainwater garden for stormwater management, so that precipitation and some river runoff can be well used in this area. In the plant disposition, the scheme chooses both decontamination and ornamental plants and flowers, such as *Albizia julibrissin*, *Metasequoia glyptostroboides*, *Photinia rubra*, *Pennisetum chinense*, *Ceratophyllum demersum*, *Iris aquaticum*, etc.

For the nearshore area management, the flood zone is set for dechannelized river part, which is guaranteed by the upstream and downstream water quantity control, making the flood range controllable.

The area adopts the waterlogging resistance design to enhance the permeability, adopts the flooding-tolerant stones, herbs and shrubs, without arbor trees. The river bank landscape is shaped to enhance the hydrophilicity. In order to cope with the influence of water level change on shoreline landscape and facilities, the plan designed the trestle of anticorrosive wood and stone laying in this area.

Combining natural landscape with river flood control, the original rigid flood control facilities are partly reformed by using natural treatment methods. New riparian protection measures, such as widening river beds, are adopted to improve flood control capacity and provide safety assurance for activities. Wide riverbanks create a hydrophilic space for people to relax and entertain, so that the distance between people and rivers closed, and the natural interaction increased.

## 5.2 Waterfront Transport Planning

The setting of transportation system is divided into static transportation and dynamic transportation.

The static traffic system (Figure 5) includes entrances and exits planning and parking lots planning to solve the bus travel problems, and also transfer and parking problems. The entrance and exit are combined with the location of the pedestrian crosswalk of the urban road around the site and the location of the public transport station, which is convenient for residents to identify and reach. More than ten primary and secondary entrances are designed to improve the accessibility to the park.

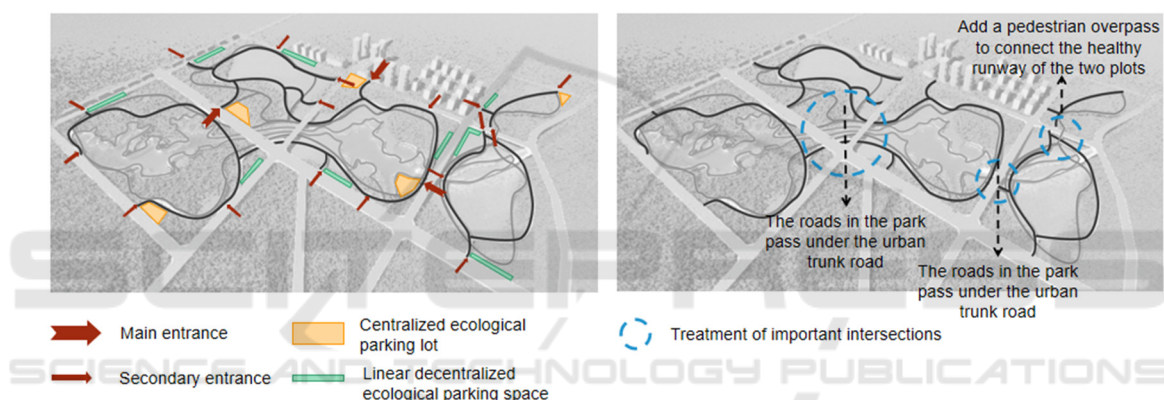


Figure 5: Schematic diagram of static traffic system.

Zao River Ecological Park planning and design has two ways to meet the residents' demand for parking: centralized ecological parking and linear decentralized ecological parking. Taking into account the nature of the ecological park, all parking lots put on the ground. The centralized parking space is set near the main entrance of the park, which is convenient for residents to park as soon as possible after entering the park, reducing the driving distance in the park and the interference of walking residents and sightseeing vehicles in the park. The linear decentralized ecological parking space is mainly set at each open secondary entrance, combined with the internal tourist routes of the site, integrated into the ecological landscape to minimize the impact to the park.

A three-level road network system is set up in the dynamic traffic system (Figure 6).



Figure 6: Schematic diagram of dynamic traffic system.

Firstly, the primary road network is a lane connecting urban roads inside and outside the site, which is used to meet the driving functions of the site, such as the connection of the main areas in the garden and the driving of sightseeing vehicles.

Secondly, the secondary road network breaks through the block limit, adopts special connection

mode, and combines several block areas of land to form a continuous trail to avoid crossing urban roads. The continuous trail is a jogging system in the park, which is used as the runway and bicycle trail for sports. It realizes the penetration and continuity of the internal road system (Deng, 2020), which has the total mileage about 7.28km.

Finally, the third level is walking waterfront landscape loop and garden path. The road network at this level bears the responsibility of connecting cultural nodes and ecological units to ensure the accessibility of the park. In terms of cultural function, it is used as the carrier of Zao River culture path design, showing different culture content, historical and cultural elements, so that residents can walk and learn while appreciating.

In addition, for the management of important intersections, according to the current situation of the site and the terrain elevation difference, the elevation difference space is formed below the plot passed by the Xifeng 1st Road and the Xifeng 3rd Road. The roads in the site pass under the urban roads, which ensure the continuity of the roads inner the park. The Shenjiaqiao 2nd Road separated two plots in the northern part of the site, connected the slow walkways of the two plots by adding pedestrian overpasses, which played a role in connecting the plots and ensured the safety of residents walking.

The design refers to Minneapolis Park in the United States and introduces a multi-level composite transportation system (Yang et al., 2020). Firstly, the continuous shade road runs through the whole park system to form 88.5km shade roads. Secondly, the continuous vehicle lane and walking road are created. Three types of roads in design form the traffic system according to the slow speed of 5, 15 and 40km/h, and are effectively connected urban transportation.

### 5.3 Waterfront Ecological Design

The river system is an important part of urban ecological environment. In the process of shaping waterfront landscape, we should pay attention to follow the principles of integrity and rationality of river system ecosystem and the diversity and dominant dominance of river function (Zhang, 2020), to create waterfront space symbiotic with urban natural ecology.

The water conservancy and hydrological process of river and its waterfront is the decisive factor of river ecosystem and other surrounding ecosystems (Zhang, 2020). Zao River used to be an ancient road of Jue River. Jue River is divided into two branches near Niutou Temple. The current Zao River is to the

north, and its tributaries include Dahuan River, Feng 2nd Canal and Taiping River. As one of the five major drainage systems (Ba River, Chan River, Zao River, Caoyun Open Channel and Happiness Channel) in Xi'an City, Zao River has long been mainly receiving urban rainwater from the southern, western and northern suburbs of city, as well as reclaimed water from nine sewage treatment plants along the line, with a daily discharge of about 1.3 million tons. In order to further improve the water quality of Zao River and the landscape features along it, corresponding ecological treatment is needed.

The construction of water system space in waterfront should avoid the destruction and interference of artificial construction (Zhang, 2020). Waterfront greening should adopt natural design, paying attention to the organic connection between river water system and surrounding ecosystem, and select the appropriate location to create ecological space based on artificial channels. Based on the concept of landscape ecology, the ecological landscape structure of "patch-corridor-matrix" is constructed. Firstly, on the basis of the current land use of Zao River, local plants are used to carry out ecological bottoming to form an ecological matrix. Then the landscape along the waterfront is shaped to form a water ecological corridor. Finally, multiple ecological landscape nodes are designed to complete the decoration of ecological patches, so as to erect the landscape structure.

The planning firstly naturalizes the river bank, selects the corresponding river section to broaden the water surface. Some are used for shaping the waterfront landscape, and some are used for ecological maintenance and improvement. The influence of ecological factors is considered in plant planting collocation, landscape sketch and facility material selection, and the concept of low impact development is followed by setting rainwater gardens, ecological parking lots and waterlogging-resistant structures in combination with terrain.

For the ecologically sensitive areas of Zao River, ecological islands are added locally for maintenance and restoration (Liu et al., 2016). On the one hand, the self-purification capacity of ecological islands can prevent eutrophication and improve water quality of Zao River. On the other hand, the park water system with good ecological environment will attract bird activities and stops, enriching the animal ecological environment in the park. In addition, island landscape is also an important part of waterfront space.



## 5.4 Cultural Routes Planning

Zao River has a long history. It was originally the Jue River ancient road, and in ancient times it was a river channel excavated as a palace canal for transporting wood. However, due to the lack of construction investment and maintenance for a long time, the ecological function of Zao River has been basically lost, excavation of water culture is insufficient, and the construction of ecological landscape is missing, so that the current construction of water culture cannot meet the needs of quality improvement and residents' living and entertainment in cities along the river line.

Human landscape is the symbol of the city, and rivers are the carrier of cultural expression. Based on the excavation of Zao River and its related urban context, the ideological culture is expressed by means of material entities, and the entities are displayed in planning and design in the form of buildings and landscapes, so that people are easy to contact and perceive (Cao, 2018).

In the space landscape design of the site containing cultural context, the original natural resources should be protected and utilized as much as possible, and the original space texture should be maintained so as not to be destroyed in a wide range (Cao, 2018). Therefore, in the landscape design of Zao River District, we should firstly respect its history and culture. The program highlights the cultural characteristics of the area through the display of natural characteristics such as canals and raw timber use. The specific principles are as follows.

Rely on natural linear conditions. Inland river is a natural resource for the city, and its limited waterfront space is important landscape and public place of the city. The development track of the city in time is depicted in the spatial sequence of the waterfront area and becomes an important 'cultural line' for reading the city (Wang et al., 2010).

Implant regional cultural themes. The scheme organizes the cultural space of whole region in culture routes way, strengthened the cognition by using space nodes. By establishing humanistic space nodes, while forming a clear infrastructure, we can build the order and integrity of space in cultural representation. In the construction process of the cultural nature of the urban leading space, taking local culture as the background, extracting regional cultural themes and implanting them into the construction process of line space, which is an important method for unifying and connecting various humanistic nodes.

The road plays a role of connecting nodes, connecting sites and spaces, guiding people to experience and perceive the site, and it is also the carrier of site culture display, has a natural linear guiding role. The planning scheme combines the historical context of Zao River to create a number of thematic cultural routes. Through buildings, sketch facilities, sculptures, inscriptions, pavements and other forms, the design popularizes science to park residents and displays urban history and culture related to Zao River Area.

The planning scheme designs four main cultural theme tour routes according to the theme, which are the cultural routes with the theme of Xingsheng culture, Chang' an river system culture, Zao River classical culture and Cannel culture.

The topographical advantages cultural theme route: Xi'an faces Qinling Mountains in the south and eight rivers in the north, forming a special form of scenic spots. This cultural route mainly shows the landscape pattern of Xi'an, through small volume of landscape sketches represent the landscape of Xi'an, so that residents can intuitively feel the landscape pattern of Xi'an city.

The eight river culture theme route: "the eight rivers are scattered, different from each other". From eight river flowed around Chang'an city in the Han and Tang dynasties to Xi'an city today, there are eight rivers, namely, Wei River, Jing River, Feng River, Lao River, Jue River, Hao River, Chan River and Ba River, flowing through Xi'an city and are indispensable part in the urban history of Xi'an. This cultural route mainly carries out the popularization of basic information of eight rivers, historical changes of rivers, and the popularization and display of water conservancy planning and engineering achievements of "Eight Rivers around Xi'an" in the new era. The scheme designed the eight rivers sculpture model, through the interaction of water injection let residents experience the fun to make eight rivers alive.

The canal culture theme route: the canal flowed over 300 miles in Xi'an, from Kunming Lake to the north, and then passed through Chanba to form a large water transport platform, Guangyuntan, and then from the canal to the east to form water wharf, which is an important part of human canal civilization. The cultural route mainly displays the history and culture of the artificial channels, and displays the contents of the historical documents in stone carving, so that the residents can understand the relevant channel culture deeply.

The Zao River allusions theme route: Zao River flows through the site, which is the most important

context in the site. This theme path mainly shows the historical changes of Zao River, the poems and songs related to Zao River, and the current special governance plan. By engraving poems on facilities such as lampposts, ground lamps and water guardrails, the cultural atmosphere of the site is enhanced and the cultural impression of Zao River is strengthened.

## 6 CONCLUSION

The river system is the foundation of the establishment and development of a city, witnessing the prosperous and decline of a city. The historical water system that has been used so far is also a symbol of urban civilization. The history and culture of urban river systems determines that the design should respect history, retain place memory and people's basic cognition, to stimulate the affinity of history and the vitality of waterfront, and to make the waterfront area a symbol of urban history. Relevant planning involves the design of urban planning land layout, hydrology and water conservancy demonstration and design, landscape design, heritage protection and so on, should be studied and implemented based on comprehensive demonstration. To meet the contemporary functions of the river and ensure its water transmission and flood control capacity, it is also necessary to carry out elastic and ecological design of the water system, combining the layout of planned land with urban green space, to create an open space with reasonable scale and provide a site for residents' activities. The layout of the site needs to strengthen the display design of shoreline, road and context, so as to continue the water system context of the historical city.

## ACKNOWLEDGMENTS

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