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# Design and Research of Dialogue-type Urban Public Facilities

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**To cite this article:**

Dong Rui, Wang Huan. Design and Research of Dialogue-type Urban Public Facilities. *Social Sciences*. Vol. 11, No. 2, 2022, pp. 60-68.

doi: 10.11648/j.ss.20221102.12

**Received:** March 8, 2022; **Accepted:** March 17, 2022; **Published:** March 23, 2022

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**Abstract:** Nowadays, with the development of China's economy and the acceleration of urbanization, the development of urban agglomerations in China has been elevated to an unprecedented strategic height, with people's needs for a better life becoming increasingly common. Systematic research on the renewal of community public facilities in the third space becomes particularly important. Dialogue-type urban public aim to discusses the design of dialogue-type urban public facilities under the background of urban renewal. With the micro-renewal of urban public landscapes as the research object, the paper aims at preserving people's urban memories and retaining the urban style based on people's needs. In view of the current problem of lack of dialogue in urban public facilities, this paper carries out research on the construction of public facility system centered on dialogues with people, sceneries and fields, so as to reshape the diversified and complex value of humanization and interpersonalization of public facilities. Through the construction of dialogues with people, sceneries and fields, dialogue-type urban public facilities can achieve the design goals of multiple integration between people and nature, three-dimensional integration of space fields, and an ever-lasting urban style. In this way, under the guidance of micro-renewal of urban public facilities landscapes, construction of public facilities in residential communities can be integrated with the society and environment to form diversified spatial forms and functional facility systems, thereby stimulating the vitality of the city and further exploring and new models of urban renewal.

**Keywords:** Public Facilities, Urban Renewal, Dialogue, System Construction

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## 1. Introduction

At present, under the background of urban renewal, new paths and new thinkings of different urban renewal have emerged throughout China. However, there is a lack of systematic research on the renewal of community public facilities in the third space. As American urban sociologist Ray Oldenburg says in the third space theory, the third space has the function of accumulating resources and people, as well as promoting urban development. In Ray's opinion, the third space can increase the diversity and richness of a city and it is public facilities in the third space that can reflect the diversity and vitality of a city to the greatest extent [1-3]. A city contains not only the social and demographic structure, but also the human society and culture. At present, the renewal of the public facilities

system in the third space is still at an early stage. How to carry out reasonable urban renewal in accordance with the different needs of different personalities for the environment to build a harmonious human settlement relationship through design and develop a comfortable human settlement becomes the primary objective of the current conversational urban public facilities. Through field research on the communities along Fengqi Road in Hangzhou, Zhejiang Province, this paper finds the pain points from a practical point of view and explores and studies the paths of micro-renovation of public facilities in traditional urban communities and old communities, so as to promote the improvement of urban public facilities.

## 2. Existing Problems in Urban Public Facilities

### 2.1. The Lack of Dialogue in Urban Public Facilities

With the acceleration of the urbanization, urban public facilities with long history should embody the characteristic of the city they belong to, including the unique personality and humanistic feelings. However, in the process of renovation, to express fragmented culture and art, cities are increasingly becoming the same, forming a usual stereotype.

As important part of the urban public system, a good urban

public facility system should be rich, individual, and diverse. Through the investigation of the communities along Fengqi Road, the author found that the area had a relatively weak public facility system in the initial planning. Besides, since their building long ago, the old communities have been in a state of "aphasia" for a long time, with a lack of maintenance, repair and dialogue of urban public facilities and public landscape and underdevelopment of the management mechanism and renovation of urban public facilities. Under such a background, the area is now caught in a series of dialogue problems, mainly reflected in "lack of dialogue with people", "lack of dialogue with scenery", and "lack of dialogue with fields", as shown in Figure 1:

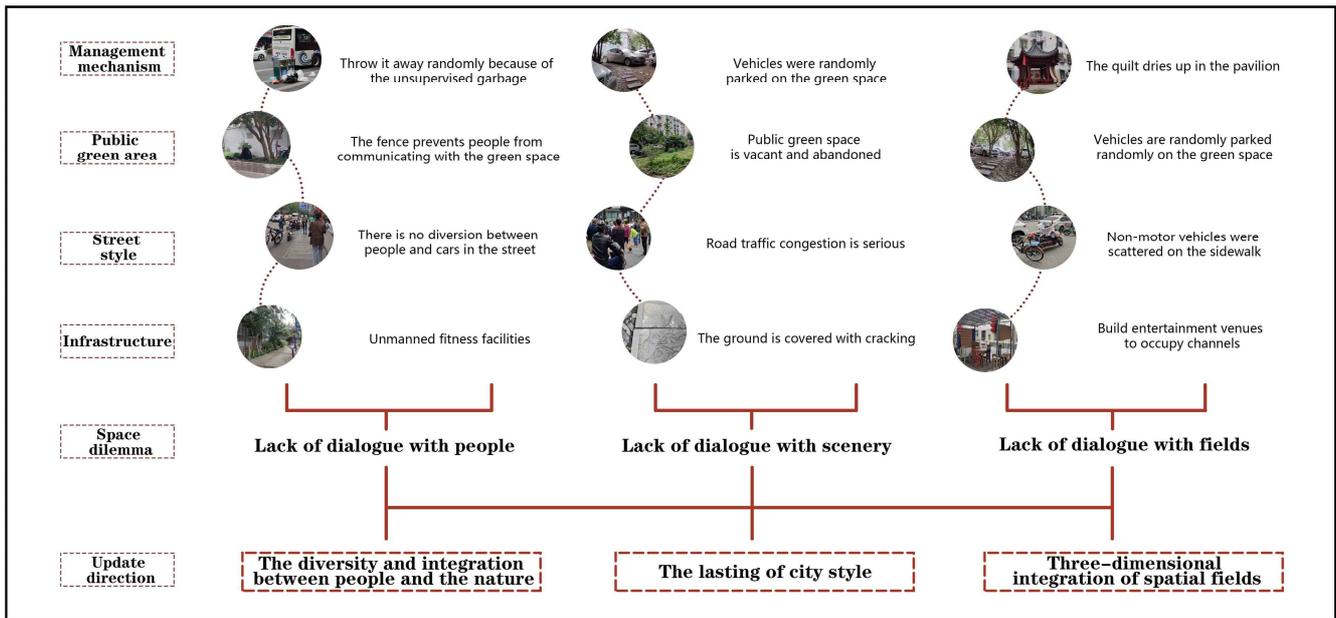


Figure 1. Analysis of existing problems of urban public facilities.

### 2.2. Lack of Dialogue with People

Public facilities should give priority to serving people, with people as the center. At present, however, most urban public facilities lack systematism, which is mainly caused by the decentralized management and the lack of attention paid to people's needs in the design and implementation. In terms of management mechanism and infrastructure, most fitness equipment belongs to property management, but the property management operation system in old communities is relatively weak. Property management paid little attention to people's poor sense of using such facilities. Over time, the dialoguerelationship between the two has weakened. Generally saying, the trash cans on street are managed by the Environmental Sanitation Bureau and cans in communities are managed by the community properties. However, in most old communities, due to obscure boundaries between streets and communities, embarrassing situations that garbage is not cleaned up timely and effectively often occur. In terms of streets and public green space, the roads in the city are constantly widened to facilitate vehicles. However, non-motor

vehicles on sidewalks speed up and shuttle among the crowds, which is not beneficial to pedestrians, making it necessary to rethink the rationality of the separation of vehicles and people. In addition, although the green space rate in the city center is high, there are only a handful of public green spaces that can communicate well with people. Most of green spaces in streets and communities are separated from people by fences, making the green space rate very inefficient. One solution is to remove the fences to release some of the ineffective green space, thereby enhancing the dialogue between green spaces and people and promote the diversity of people and nature.

### 2.3. Lack of Dialogue with Sceneries

With the improvement of living standards and the pursuit of healthy life of urban residents, people have higher demands and expectations for public facilities and roaming trails in urban green spaces [4]. However, with the acceleration of the urbanization process, the urban landscape which should have a unique style and characteristic after long history has lost the original characteristics due to the fixed restoration for the sake of homogenization of the landscape, which further aggravates

the phenomenon of urban aphasia. For instance, the unified wayfinding system, the building facade with a single style, and a lack of features and aesthetics, and abandoned vacant green spaces. These fragmented landscapes result in a cookie-cutter urban style, separating people from memories of the city. Besides, the lack of maintenance, renovation and management mechanism of landscapes and the fragmented integration of urban planning make the dialogue between people and landscape, and the dialogue between landscapes scarcer.

#### 2.4. Insufficient Dialogue with Fields

As the carrier of urban public facilities, fields are the most intuitive medium to show the characteristics of the urban style. The design of fields is not only a design trend in a city, but also the crystallization of the wisdom of designs of urban public facilities. Compared with the traditional urban green space system planning, the current urban green space planning, starting from the perspective of the city and large areas, highlights the ecological integrity of urban space and the publicity of green space, with the concept of regional overall development and the rationality and sustainability of urban spatial structure development [5]. In terms of the design of fields, more consideration should be given to people's needs, so as to enhance people's sense of experience of various functional facilities in fields and to promote the dialogue between people and fields.

### 3. The Necessity of Constructing a Dialogue-type Urban Public Facility System

#### 3.1. Introduction of the Concept of Dialogue-type Urban Public Facilities

F. Tibbalds (1992) thinks that the public sphere composed of urban public spaces is "the place where people contact and interact with each other, and is the most important part of the city" [6]. As an important carrier of urban life and culture, urban public facilities is conducive to promoting exchanges between people, between people and nature, and between people and spheres, with people as the center.

The dialogue-type public facilities discussed in this paper is proposed for the lack of dialogue in current urban public facilities, based on the analysis of existing problems of urban public facilities. As the main public facilities for people to carry out outdoor activities and neighbor exchanges, urban public facilities are the essence of the urban environment. With people as the subject and fields and nature as objects, dialogue-type public facilities intend to create a communicable human settlement relationship, in which people trust, depned on and recognition each other, as shown in Figure 2. In the process of design, it is necessary to truly feel various behaviors of people in their daily life in the city to create dialogue-type public facilities in accordance with different personalities, thereby eliminating the phenomenon of urban aphasia.

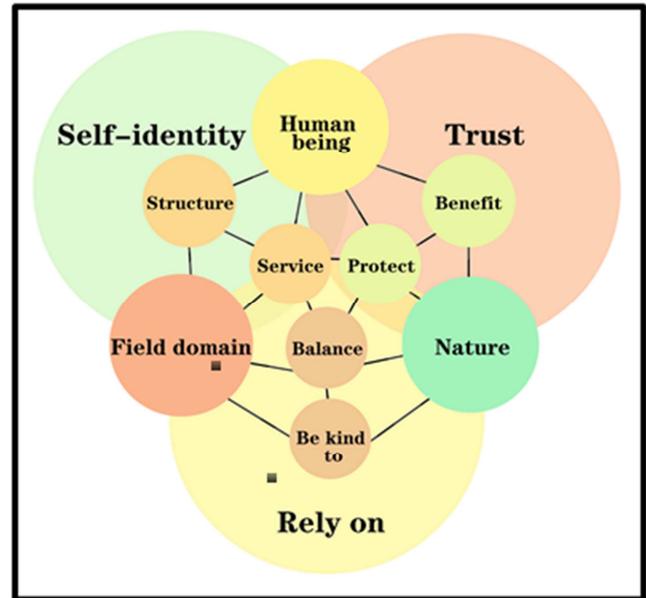


Figure 2. Building harmonious habitat relationships.

#### 3.2. Establishment of Dialogue with People

First, in dialogue with people, the design and configuration of public facilities is an essential part of a city and an inseparable part of people's lives [7]. The basic requirement in the design of public facilities is to conform to ergonomics and the principle of safety, making them suitable for all age groups and reflect fairness. For example, public seats should meet the basic needs of rest and waiting of people. Besides, considering that people with neurotic personality are characterized by tension, anxiety and other emotions. Therefore, on the basis of safety, the principles of comfort and healing should be reflected. Furthermore, besides the design concept of dialogue between people and other things, the selection of materials, the coordination of spatial scales and the matching of colors should also be paid attention to. In this way, the unique style runs through the city, allowing residents to develop a special emotional experience in the process of usage [8], so as to develop dialogue-type urban public facilities.

#### 3.3. Establishment of Dialogue with Sceneries

Through the investigation of communities along Fengqi Road, it is found that there are major problems in the urban landscape, such as the same urban street style throughout the area and low efficiency of public green spaces. As an important place for people's outdoor activities and exchanges, urban parks appeal an instinctive enthusiasm of people for their construction, maintenance and improvement [9]. The conscientious personality is charactered by self-discipline, a strong sense of logic and pursuit of achievement, with a high demand for self-realization. This article roughly classifies people with this kind of personality as public participation. Public participation is defined as "the participation of residents, tourists, relevant interest groups and professionals in all stages of urban planning and landscape design through discussions and consultations" [10]. Public landscapes in

urban areas with healing, autonomy and public participation can allow people to satisfy their self-realization needs and thus feel a sense of participation and pride. In the design of urban public facilities, it is not only necessary to provide people with places for outdoor activities, but also important to show the essence of urban culture and visual aesthetics as much as possible, so as to stimulate the vitality of the city and promote the lasting of the city. People with extravertive and open personalities have the characteristics of novelty and self-inquiry. Artistic, creative and aesthetic urban parks can appeal these people to stay and make them feel a kind of pleasure and kindness in use, which greatly meets people’s dialogue needs [11].

**3.4. Establishment of Dialogue with Fields**

The design of urban public facilities should be expanded towards a more ideal direction of realizing the integrity of social interaction and the pleasantness of dialogue, with more attention paid to the dialogue between people and the space field. In the 1980s, Costa and McCrae, based on trait theory, proposed the Five-Factor Model (OCEAN), including Openness, Conscientiousness, Extraversion, agreeableness and neuroticism [12]. Each personality has different performance characteristics. Positive psychology believes that people’s attitudes, behaviors, and emotions can affect each other [13]. In the Five-Factor Model, extraversion and openness tend to have greater social needs. Different spatial scales in public facilities will bring people different psychological feelings and people will form a self-centered invisible bubble in different external scenes, which is called interpersonal bubble in psychology. Cultural background, on-the-spot mentality, and habits and hobbies are all influencing factors of interpersonal bubbles. Under different conditions, a person’s interpersonal bubble will change [14]. Interpersonal bubbles in smaller fields bring people a sense of

security, while those in larger fields can make people lonely. In terms of that, in the design of space fields, attention should be paid to the design principle of multiple wholes. Agreeable personality is characterized by trust, frankness and altruism. Therefore, in the design of public facilities, it is necessary to design humanized spatial scales based on the needs of different scenarios, so that people can create large and small interpersonal bubbles with a sense of dialogue in public facilities. Appropriate sizes and shapes can not only improve the aesthetic effect of public facilities, but also stimulate people’s desire to communicate and learn from each other, thereby providing comfort to people’s psychology.

**4. Feasibility of the Establishment of a Dialogue-type Urban Public Facility System**

**4.1. Feasibility of Dialogue-type Public Facility System**

Excellent public facilities serve and coexist with people, as an art to promote the development of a city and condense a city’s style to carry the mainstream values of culture and time. Based on the problems in the dialogue with people, dialogue with sceneries and dialogue with fields, a SWOT analysis was finally formed through systematic analysis of the advantages, problems, opportunities and challenges of streets along Fengqi Road in Hangzhou (Figure 3). Through analysis, it is found that the area is located in a commercial and leisure center, with a superior location, abundant surrounding supporting facilities and convenient transportation. However, the public facilities in the area are old and the same, with redundant public green spaces. In terms of that, it is necessary to carry out the renewal design of public facilities based on the lack and demand of people, sceneries and fields.

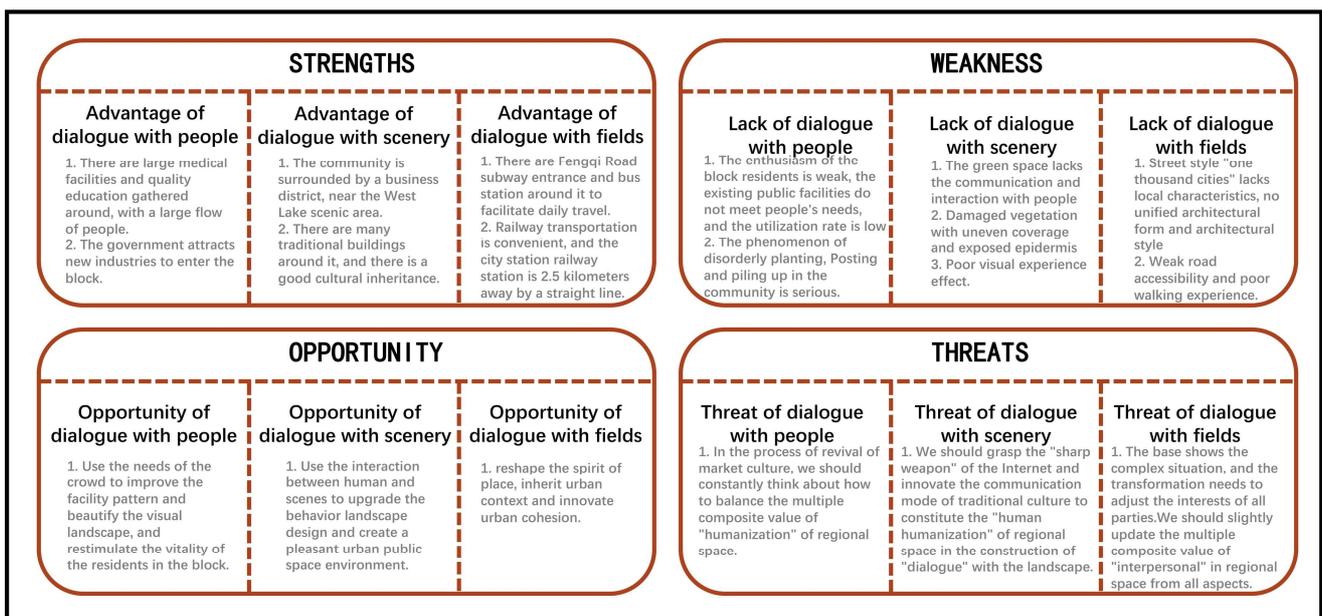


Figure 3. SWOT analysis.

According to the SWOT analysis, it can be found that the system update of dialogue-type public facilities requires a detailed analysis of behaviors and emotions of users, so as to connect the value of public facilities to the needs of people to carry out systematic updating of the space. For instance, to improve the layout of facilities and beautify the visual landscape based on people's needs to re-invigorate the vitality of residents in the neighborhood; the interaction between people and sceneries can be used to combine people's behaviors with sceneries in the design to create a pleasant urban public space environment; the spirit of the place can be reshaped to inherit the urban culture and innovate urban cohesion. In the establishment of dialogue with people, dialogue with sceneries, and dialogue with fields, it is important to constitute the multi-compound value of humanization and interpersonalization in regional spaces.

**4.2. Analysis on the Establishment Strategy of Dialogue-type Public Utility System**

Dialogue-type urban public facilities expect to build a beautiful living environment, with people as the core of all researches and practice, to analyze residents' lifestyles, living security, comfort and sense of belonging, thereby carrying out

in-depth research on dialogue-type public facilities. In the design, it is necessary to redesign the infrastructure, street style, public green space, and road traffic, to achieve the diversity and integration between people and the nature, three-dimensional integration of spatial fields, and the lasting of city style, through the establishment of dialogue with people, dialogue with sceneries, and dialogue with fields. The main update strategies are as follows.

First, it is necessary to improve infrastructure, design intelligent systems and build multi-functional infrastructure to facilitate the public; second, it is important to create an ever-lasting urban street style, so as to optimize the style of traditional old streets and convey folk customs to highlight regional cultural characteristics; third, it is suggested to build a dialogue-type artistic public landscape and reuse abandoned green spaces in the area, such as dismantling ineffective fences to release greenery or creating small artistic landscapes; fourth, it is of great importance to develop a highly accessible traffic network to improve the density of internal and external road lines and properly use the TOD model to realize urban roaming and promote exchanges. Through the design of a series of dialogue-type urban public facilities, it can be expected to finally build a beautiful living environment, as shown in Figure 4.

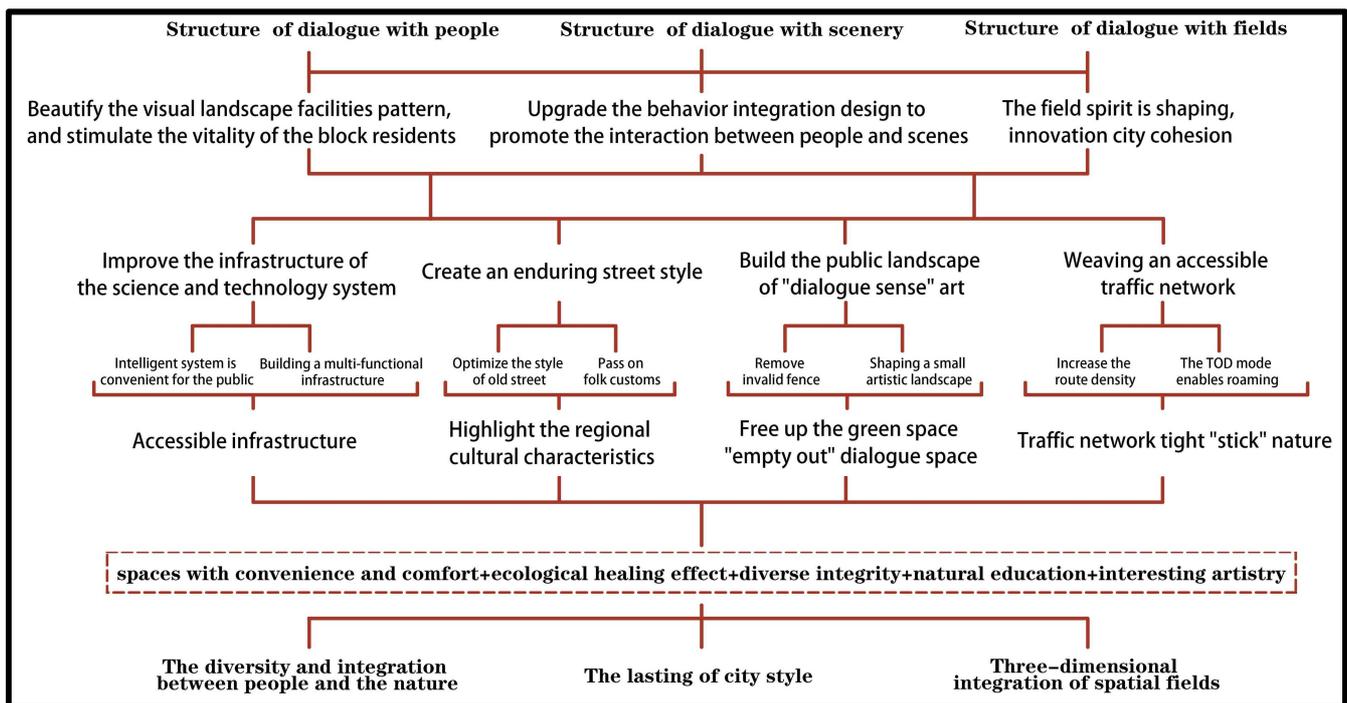


Figure 4. Public facilities shaping strategy.

**5. Update of Design Practice**

Taking communities along Fengqi Road in Hangzhou as an example, the priority should be given to the overall space utilization of dialogue-type public facilities according to the actual land use of the research project. Besides, the area to be designed is located in the center of Gongshu District, making

the area a commercial, economic and leisure center, with a large number of old communities concentrated in its surrounding areas. In terms of that, it is necessary to emphasize the connection between the dialogue-type urban public facilities and surrounding communities, uses multiple dialog boxes to deconstruct the concept of dialogue circle in future communities, and create future scenarios starting from the multiple circle model of public facilities (Figure 5 and

Figure 6).

Based on the above-mentioned renewal design goals of multiple integration of people and nature, three-dimensional integration of space fields, and lasting urban style, this renewal design tries to implant the dialogue-type urban public facilities construction strategy into the design, to weaken the division between public facilities and private space in the overall transformation. Furthermore, according to the requirements of urban micro-renewal, the design focuses on abandoned vacant green spaces and public areas, with high land use ration and dialogue-type public facilities paid attention to, so as to achieve diverse commonality and

integration.

What's more, the design focuses on the landscapes and public facilities, with the needs of users and the landscape function attributes of each area taken into consideration. In this way, spaces with convenience and comfort, ecological healing effect, diverse integrity, natural education, and interesting artistry can use deconstruction, superposition and other elements for composite functional design, thereby forming multiple spatial forms and functional facilities to stimulate urban vitality, as shown in Figure 7. In the next part, the author conducts detailed analysis in terms of the above-mentioned update strategies.

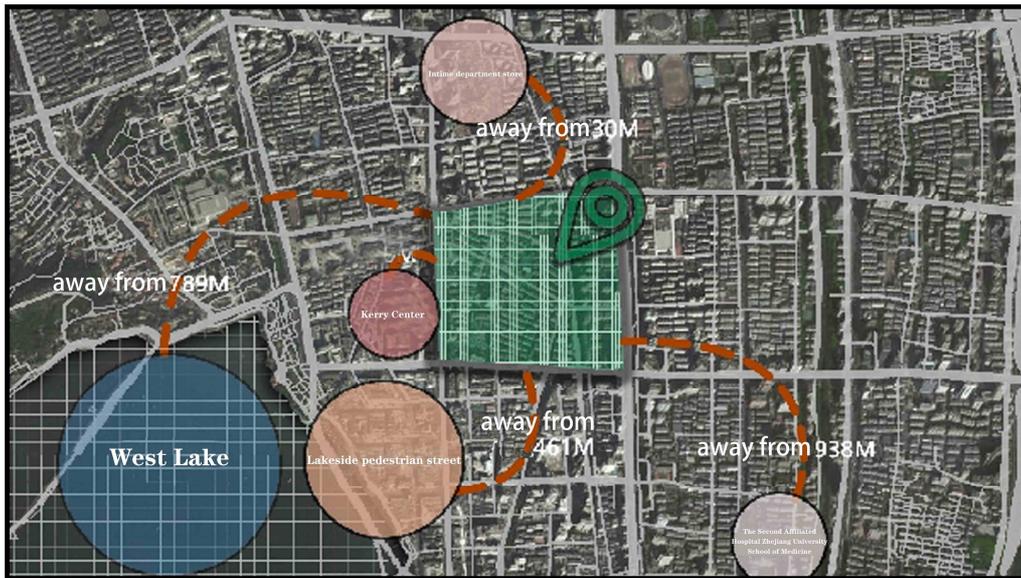


Figure 5. Base Positioning.

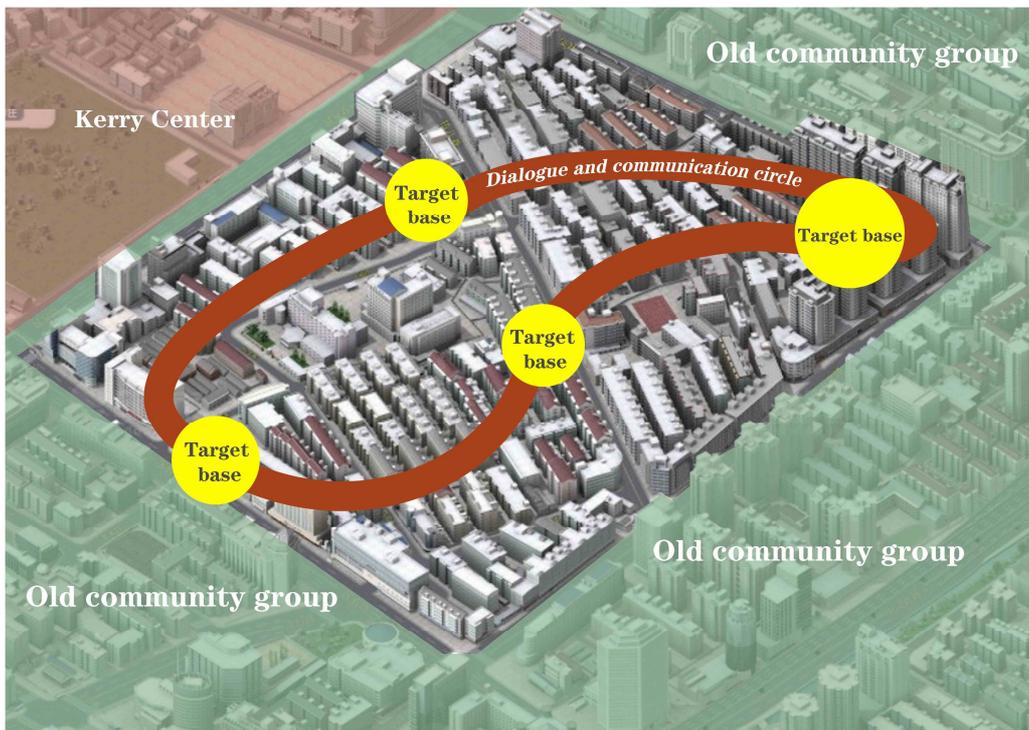


Figure 6. Dialogue Exchange Circle.



Figure 7. Design analysis of some landscape nodes along Fengqi Road block.

### 5.1. Construction of Public Facility Landscapes with a Sense of Dialogue

Taking the neighborhood garden at point A as the main space, this design aims to build artistic public landscapes with a sense of dialogue. On the plane, the special-shaped dialog box corridor is placed on fields, which not only removes invalid fences to release the green space and reintegrate the boundary of public spaces, but also uses a few scattered activity fields reasonably to construct public landscapes of flower house art. Besides, green spaces are changed to neighborhood gardens, to be incorporated into the public space system constructed by the mentioned corridors. The design of curved corridors weaves green spaces in fragmentation with scattered functions into a series of complex spaces with organic connection and distinct fields, in order to reactivate the public life of residents in these communities and restore the relationship between urban space and society. The third space public facility tries to fully meet the needs of all people in all ages with a sense of dialogue, with the characteristics of fun and artistry fully reflected. Besides, the design emphasizes the dialogue between people and space, and different people, making such a space have a relatively strong dialogue ability, which is conducive to obtaining individual attributes in groups [15]. The art public

landscape facilities with a sense of dialogue can display the most distinctive visual art aesthetics to the greatest extent, interpret creativity and endow city parks with a personalized artistic identity.

### 5.2. Construction of Multifunctional Infrastructure

With regard to leisure gardens in communities at point B, the design mainly considers how to facilitate the public through improving the infrastructure, designing intelligent systems, and building multi-functional infrastructure. The core strategy of the design is to adjust the existing public facility configuration relationship through minimal and low-cost precise intervention, so as to explore and activate the potential of the original space elements. Public parks in communities are mainly targeted at residents of communities and some tourists, making it necessary to highlight the healing attribute of the landscape. The healing attribute of landscapes refers to using landscape environmental factors to create an environment is conducive to people's physical and mental health, thereby improving human functions and reducing users' pressure to a certain extent [16]. Taking into consideration personalities with pleasantness, extroversion and openness, the design constructs three-dimensional greening among buildings. Since the large proportion of elderly people in communities, aging-friendly facilities are designed. Based on

surrounding environment, the design chooses appropriate materials and plantings. The main component of the design is a streamlined semi-open public landscape space with concentrated seats in designated areas. On one side of streets, silk trees in oblique long flower pots are planted to separate roads from public areas and combine newly planted trees with existing ones; for floor tiles in leisure gardens, the traditional large mosaic square tiles are retained in transformation play an anti-sliding role to protect the elders, highlighting convenience and comfort.

**5.3. Construction of Public Facilities with Cultural Characteristics**

The Yuedong Park at point C is designed as a small-scale miniature park on the city street. It mainly considers personalities of pleasantness, extroversion, and openness. With the goal of improving the street style and creating a lasting street style, the design pays attention to interesting artistry and environmental education. The children’s play area composed of curved and cone slides can remian the sense of order of original components. Besides, the beams and columns painted with red and yellow fluorocarbon, creating a relaxing and lively atmosphere; public facilities such as interesting microphones, pleasant windmills, and plant specimens are designed to maximize the function of environmental education. The original cracked asphalt ground at the entrance of the site and the design strategy of juxtaposing textures achieves the harmonious coexistence of old and new elements, thereby developing an ever-lasting street style and highlighting cultural characteristics with new openness and richness.

**5.4. Construction of Digital Public Facility System**

As the area with the largest population, the street corner garden at point D, mainly focuses on personalities with agreeableness, extraversion, openness, conscientiousness, and neuroticism. The design, guided by different design paths, achieves zone division with multiple functions. The outer walls of the office buildings in the block are opened and incorporated into the public space system of step area for rest, which is a rest space with stepped wooden countertops on the edge of the outer wall. What’s more, a digital public facility system and step areas for rest and dialogue along the wall are established to create spaces for people to stay. Furthermore, a red promenade is formed between step areas for rest, which can connect different public areas into a whole. Taking the street corner garden here as a typical example, each node has a special theme and the nodes are connected by pedestrian paths to provide a pleasant roaming and walking experience for people. In this way, tourists and residents can relax and communicate in spaces with a sense of dialogue.

Based on the above analysis, the overall redesign and transformation of public facilities in communities along Fengqi Road from the outside to the inside are as follows (Figure 8):

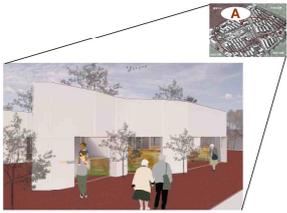
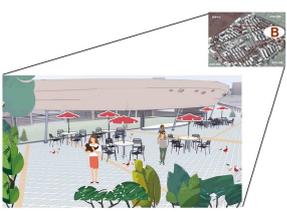
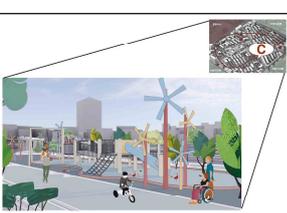
Analysis of dialogue public facilities in blocks along Fengqi Road			
	Space activities	Design effect	Function
<b>A</b> the Neighbor hood garden	Construction of Public Facility Landscapes with a Sense of Dialogue		Neighborhood communication + nature education + self-participation + wisdom and leisure + cultural aesthetic
<b>B</b> Leisure gardens in commu- nities	Construction of Multifunctional Infrastructure		Neighborhood communication + nature education + intelligent leisure + traffic function + landscape function + pension function
<b>C</b> The Yuedong Park	Construction of Public Facilities with Cultural Characteristics		Neighborhood communication + wisdom and leisure + cultural and aesthetic appreciation + landscape function
<b>D</b> The Street corner garden	Construction of Digital Public Facility System		Neighborhood communication + nature education + business function + intelligent leisure + cultural aesthetic + pension function

Figure 8. Analysis of dialogue public facilities in blocks along Fengqi Road.

**6. Conclusion**

To sum up, considering that the exploration of dialogue-type urban public facilities is still at an early age, the synchronous update of urban public facilities is an indispensable task in the long-term planning of future regional development. Starting from the needs of people, this paper, breaking the stereotype of inherent design ideas, interprets public facilities through dialogue with people, dialogue with landscapes, and dialogue with fields to think public facility design from a more comprehensive and people-oriented perspective. Besides, this paper carries out micro-renewal of the urban public landscape at a lower cost, thereby achieving the design goal of multi-integration of people and nature, three-dimensional integration of space fields, and a lasting urban style. However, due to different problems, urban social structures, human social activities and cultures in different cities, how to coordinate the needs of most groups and transform public facilities suitable for their lives to the greatest extent requires researchers’ further efforts. This paper, taking the Fengqi Road in Hangzhou City, Zhejiang Province as a research sample, analyzes differences and common

problems in the development of various cities and conducts a realistic update research. However, researches on many other fields of public facilities still need to be further developed by other scholars.

## Acknowledgements

This work is supported by: 1. 2020 Philosophy and Social Science Planning Project Youth Project of Zhejiang Province (NO.: 20NDQN323YB), 2. Construction of the first batch of industrial colleges and demonstration bases for the integration of industry and education of Zhejiang University of Finance & Economics Dongfang College (NO.: 122276213107) and National College Students' Innovation and Entrepreneurship Training Program (NO.: 202013294008).

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