

Optimization Strategies for Park Greenway Systems from a Humanistic Perspective: A Case Study of Guangzhou Riverside Linear Park

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Abstract:

Taking Guangzhou Riverside Linear Park as a case study, this paper explores optimization strategies for park greenway systems from a humanistic perspective. By conducting an analysis of the current situation and user experience research in Guangzhou Riverside Linear Park, combined with relevant domestic and international research findings, a series of optimization strategies are summarized with the aim of improving the park's greenway system. The concepts and principles of humanism can guide the optimization of park greenway systems to meet the expectations and needs of the public, enhancing residents' quality of life and promoting the sustainable development of the city. Through the case study of Guangzhou Riverside Linear Park, this research focuses on resource utilization, design optimization, and enhancing user experience while adhering to the "human-centered" design principle. The goal is to create a sustainable, diverse, and livable green space in the park's greenway system that aligns with people's expectations, promoting health, vitality, and community interaction.

Keywords:

Humanistic Perspective, Park Greenway System, Guangzhou Riverside Linear Park

1. Introduction

With the accelerated process of urbanization and people's pursuit of a healthy quality of life, urban park greenway systems play a crucial role as important components of urban green spaces and recreational areas, promoting sustainable development and improving residents' quality of life. In the design and management of greenway systems, a humanistic perspective has become a core concept, emphasizing a people-centered approach to meet their needs and expectations, providing a good user experience and fostering social interaction. Guangzhou Riverside Linear Park, as one of the urban greenway systems in Guangzhou, holds significant research and practical significance.

1.1. Research Background and Significance

As an important economic center and cosmopolitan city in southern China, Guangzhou has experienced continuous population growth and urban density, facing increasingly severe challenges in urban space. Urban park greenway systems have received extensive attention as a primary means to alleviate urban pressure, improve the urban ecological environment, and enhance residents' quality of life. However, many current designs and management of urban greenway systems have encountered certain issues, necessitating research on optimization strategies from a humanistic perspective to address real-world challenges.

Firstly, a lack of sufficient consideration for user needs and experiences is a problem in current urban greenway systems. It is essential to gain in-depth understanding of residents' needs and expectations, focusing on their experiences and sense of participation within the greenway system. Secondly, the planning and management of greenway system continuity, landscape quality, and service facilities also require effective improvements. Humanism emphasizes placing human needs and well-being at the core of design, thus attention should be paid to the coherence and integrity of the greenway system during the planning and management process, creating a pleasant environment for leisure and recreation. Additionally, enhancing the landscape quality and service facilities, such as adding rest areas, scenic spots, public restrooms, etc., is crucial to improve user experience and satisfaction.

By understanding and meeting residents' needs, improving the design and management of greenway systems, the usability, accessibility, and satisfaction of park greenway systems can be enhanced. This will contribute to promoting the physical and mental health of urban residents, fostering social interaction, and driving urban sustainable development. Moreover, optimization strategies from a humanistic perspective can strengthen the connection between the city and nature, promoting ecological conservation and environmental sustainability. Through these efforts, Guangzhou can construct a more vibrant and livable urban park greenway system, providing residents with a better living environment and quality of life.

2. Research Status

With the increasing demand for urban green space systems, research on optimization strategies for park greenways has received growing attention. In recent years, researchers have started incorporating a humanistic perspective into the planning and design of park greenways. This perspective emphasizes a people-centered approach, focusing on user needs and experiences to enhance the usability and attractiveness of park greenways. Relevant studies have explored the principles and methods of applying a humanistic perspective in park greenway design, such as user participation, community involvement, and user behavior analysis. The research topics mainly include the design principles and guiding principles of park greenway systems, people's needs and preferences for park greenway systems, and the impact of park greenway systems on human health and well-being.

Researcher Liu et al. mentioned the importance of focusing on citizens' needs and rights, providing a better urban park experience and living environment through improved accessibility, enriched functional effects, reshaping boundary relationships, and expanding service coverage [2]. Researcher Wang et al. proposed advocating a people-centered concept that promotes slow transportation and slow systems, with park-like green spaces playing an important role in this optimization process. By

connecting the slow system, urban accessibility and diversity in green space planning can be enhanced [1]. Researcher Li Jia emphasized the need to observe and analyze the characteristics of small cities in detail from a humanistic perspective and design based on user needs. It aims to enhance the livability, suitability for industries, and tourism, while solving the challenge of designing uniform cities [3]. Improving the continuity and accessibility of park greenways can be achieved by adding connecting nodes, optimizing path layouts, providing wayfinding signage, and information displays. Researcher Z. pointed out that combining urban greenway landscapes with natural ecosystems can create more comfortable, safe, and healthy social movement and leisure spaces for citizens [6]. Attention to landscape design and environmental quality of park greenways is crucial to enhancing their aesthetic, ecological, and cultural values. Researcher Tian Wei mentioned that greenways connect parks and communities, connecting natural resources with people. Implementing the humanistic concept in greenway planning is crucial for creating an acclaimed greenway network, understanding residents' needs, and reflecting regional characteristics [7].

In summary, the research status indicates that a humanistic perspective has guiding significance for the optimization of park greenway systems. By focusing on people's needs, experiences, and participation, park greenway systems can better meet their living needs and enhance their quality of life and well-being. However, there are still challenges to overcome, such as increasing public participation and integrating cultural diversity. Therefore, further research and practical application are necessary to promote the application and development of a humanistic perspective in the optimization of park greenway systems.

3. Humanism and Park Greenway Systems

3.1. Definition of Park Greenway Systems

Park greenway systems refer to comprehensive green space networks integrating parks and greenways as core elements. They integrate urban green space resources to provide urban residents with places for leisure, recreation, physical exercise, and nature experiences. Greenways are linear green corridors that connect different locations and points of interest. They are typically established along rivers, lakes, urban edges, or historical and cultural areas, offering scenic views, natural environments, and cultural heritage appreciation along the way. Greenway designs should consider people's walking, cycling, and wheelchair access needs, often featuring footpaths, bicycle lanes, and accessible pathways. They should also provide various functional and activity spaces to meet people's diverse needs, such as leisure and entertainment, outdoor sports, social activities, and cultural exchanges. Park greenways contribute to protecting the urban ecological environment, providing green vegetation and natural elements, reducing the urban heat island effect, and enhancing air quality and water resource conservation. By connecting different areas of the city, they provide convenient travel routes and circulation, promote communication and interaction among urban residents, and increase community cohesion. They offer urban residents abundant spaces for leisure and recreation, promoting healthy lifestyles and the sustainable development of communities.

3.2. Conceptual Explanation of Humanism

Humanism is a philosophy and value system that emphasizes placing human needs, rights, and well-being at the core of society and design. In the field of landscape

design and planning, humanism advocates a people-centered approach, respecting human dignity, equality, and rights, and considering humans as central participants in design and planning processes. It focuses on people's experiences and well-being, striving to create environments that promote physical and mental health and well-being. In this process, humanism emphasizes the importance of people's feelings, experiences, and involvement, aiming to create environments that align with their needs. Humanistic design approaches emphasize interaction and co-creation with people. By actively engaging in communication and collaboration with people, gaining in-depth understanding of their needs, cultures, and social backgrounds, resonant and sustainable park greenway systems can be created. Such systems provide people with rich experiences, facilitate social interactions, and enhance their quality of life. Particularly, with the widespread promotion of the concept of fitness for all in society, urban and park development increasingly focuses on pedestrian spaces. Pedestrian greenway systems serve as important venues for citizens' leisure and recreational activities and play a crucial role in urban planning [4]. Therefore, it is of great significance to evaluate and improve the pedestrian environment of riverside greenways from a humanistic perspective.

3.3. Humanistic Concepts in Park Greenway Systems

Despite the changing forms of design due to technological advancements, the fundamental attribute of "human-centeredness" in design remains unchanged [5]. Humanistic approaches to greenway design, based on the humanism perspective, emphasize placing human needs, rights, and experiences at the core of design and planning. Park greenway systems are important green spaces in urban areas, aiming to create more humanized, sustainable, and meaningful urban environments. The application of humanistic perspectives can provide valuable guidance for the optimization and enhancement of park greenway systems.

Firstly, humanistic concepts emphasize people-centered design methods. In the planning and design process of park greenway systems, people's needs, health, and well-being should be fully considered. This means focusing on people's experiences and involvement, striving to create environments that promote physical and mental health and well-being. Secondly, humanistic concepts emphasize principles of sustainability. In the design and management of park greenway systems, current and future human needs should be taken into account, with a focus on the protection and restoration of the ecological environment. This includes the rational use of natural resources, promoting ecological conservation, reducing carbon emissions, and enhancing biodiversity. Furthermore, humanistic concepts emphasize interaction and co-creation with people. Park greenway systems should encourage community residents' participation and collaboration, gathering diverse wisdom and strengths. By adopting methods such as participatory design, community engagement, and public participation, public opinions and suggestions should be widely solicited, and the value consensus and common interests of the community should be incorporated. This helps to avoid conflicts between design and the environment, development and the environment, and between people and the environment, while enhancing the acceptability and social identification of park greenway systems.

In conclusion, the humanistic perspective is of great significance to the optimization of park greenway systems. By incorporating human needs, rights, and experiences into the scope of planning and design considerations, park greenway systems can better meet people's life needs, enhance their quality of life, and improve their sense

of well-being. In the case of the Guangzhou Riverside Linear Park as an example, the application of a humanistic perspective can provide valuable ideas and methods for the planning and design of park greenway systems.

4. Analysis of the Current Situation of Guangzhou Riverside Linear Park

4.1. Location Overview

Guangzhou Riverside Linear Park is located on the north bank of the Pearl River in Tianhe District, Guangzhou City, Guangdong Province. It is situated east of Chebei South Road and west of Shenlong Creek. The park stretches along the Pearl River, starting from Guangzhou Bridge, and forms a linear landscape park. It is widely used for leisure, entertainment, and outdoor activities. The total length of the park is approximately 2.5 kilometers, with a total area of around 85,000 square meters. The park features a variety of garden landscapes, including clever combinations of tall trees, shrubs, seasonal flowers, complemented by scenic rocks and flower paths, creating charming garden scenes. In addition, the park is equipped with various facilities such as garden paths, pedestrian walkways, benches, and rest areas, providing convenience and a comfortable experience for visitors.

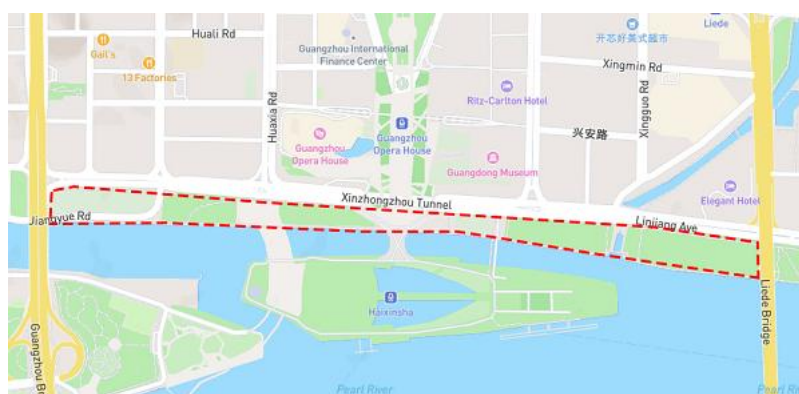


Figure 1. The map of Guangzhou Riverside Linear Park .

Source: <https://studio.mapbox.com/styles/songjiayi/cli1oepvh00vs0lpoatbv46yg/edit/#14.96/23.1179/113.31764>

Guangzhou Riverside Linear Park is a picturesque and diverse linear park that caters to the needs of different people, whether it's for morning jogs, walks, leisure activities, or hosting outdoor events. It allows people to enjoy the beauty of nature and the convenience of urban life. Whether you are a local resident or a visitor, you can find tranquility and relaxation here, experiencing the charm of nature.

4.2. Current Analysis

4.2.1 Path Layout

The park features three main types of paths: Riverside Walkway, Greenway Trails, and Rubberized Running Tracks.

Riverside Walkway: Extending along the riverbank, the walkway is spacious and features comfortable footpaths. These pathways run parallel to the river, allowing visitors to enjoy both the magnificent river view and the beautiful green landscape. Resting benches are conveniently placed along the way for visitors to pause, admire

the river, and appreciate the changing scenery. The Riverside Walkway provides a pleasant environment for leisurely strolls, enabling people to feel connected to nature and the water.

Greenway Trails: Serving as scenic paths within the park, the greenway trails connect various points of interest, recreational areas, and the Riverside Walkway. These trails are often laid out on green lawns, creating a sense of closeness to nature. Along the trails, there are flower beds, landscape trees, and decorative elements that contribute to a diverse and visually appealing environment. The Greenway Trails offer visitors a comfortable and peaceful place to walk, where they can enjoy the scenery while experiencing the joy of walking amidst nature.

Rubberized Running Tracks: The rubberized running tracks provide a dedicated space for citizens to engage in jogging and exercise. Separated from the Riverside Walkway by a green area, these tracks allow runners to enjoy the river view and feel the breeze while exercising. The rubberized surface of the tracks provides elasticity and comfort, reducing the impact on the body during running and creating a safe and pleasant exercise environment. People can fully enjoy outdoor activities and pursue their fitness goals in this space.

With these three types of paths, Guangzhou Riverside Linear Park has become a versatile recreational space that caters to the diverse needs of different individuals. Whether it's admiring the river view, taking leisurely walks, or engaging in jogging and exercise, visitors can find suitable paths that allow them to embrace the harmonious blend of nature and urban elements.

Please refer to Figure 2 for a current photo of the park's path layout.



Figure 2. Garden path.

4.2.2. Landscape Structures

Currently, the park's landscape structures mainly include running sculptures, pavilions, landscape flower beds, and rainwater irrigation devices.

Running sculptures: These sculptures realistically depict the postures and movements of runners. Through the art of sculpting, they capture the power and beauty of running. These sculptures serve as both decorative elements in the green spaces and inspirations for people's interest in sports and a healthy lifestyle, creating a positive and uplifting atmosphere.

Pavilions: There is currently one pavilion in the park, designed in a modernist style. It is located at the intersection of the entry greenway trail. The pavilion provides a resting place for visitors to relax and enjoy the scenery. However, due to its open design, it does not provide shade or shelter from rain.

Landscape flower beds: These flower beds are decorative elements within the park. By planting a variety of flowers and plants, they create a vibrant and colorful floral

landscape, adding vitality and visual enjoyment to the park. Visitors can appreciate the beauty of different flowers and plants, enhancing their visual experience.

Rainwater irrigation devices: These devices are located near the grass areas and have an umbrella-like structure. They serve multiple purposes, including the sustainable use of rainwater to provide a water source for the park's green spaces and flower beds. They also provide shade from the sun. The rainwater irrigation devices not only conserve water resources and reduce maintenance costs but also demonstrate the park's commitment to sustainable development.

Please refer to Figure 3 for current photos of these landscape structures. These structures enhance the park's landscape features and provide visitors with more activity and interaction spaces. They make the park more attractive and inviting, allowing people to enjoy leisure and recreational activities in a natural environment.

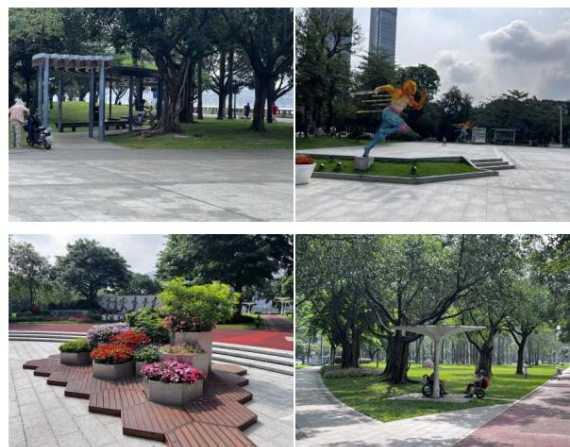


Figure 3. *Landscape Structures.*

4.2.3. Road Pavement

The park's road pavement utilizes multiple materials, primarily consisting of five types: permeable bricks, permeable stone slabs, cobblestones, and plastic road materials.

To harmonize with the riverside scenery, permeable bricks and permeable stone slabs are used for the riverside walkway. These materials are not only permeable, allowing rainwater to penetrate and drain effectively, but also help reduce surface water accumulation and the risk of slipping. The gray color of the permeable bricks blends well with the surrounding natural environment, providing a comfortable walking experience for pedestrians and creating a harmonious and unified pathway.

The greenway paths are paved with red and yellow permeable bricks, with a few cobblestones as embellishments. The combination of these materials creates a tranquil and natural atmosphere, complementing the overall ambiance of the greenway. The red and yellow permeable bricks, vibrant in color, correspond with the greenery, adding vitality and color to the park and attracting the attention of visitors.

The plastic road material is used for the jogging track, specifically designed for joggers. This material offers elasticity and comfort, reducing the impact and potential damage to joints during running. The plastic road material also provides excellent slip resistance, ensuring the safety of runners even in wet or rainy weather. Additionally, the bright colors of the plastic road material add vibrancy and visual appeal to the

park.

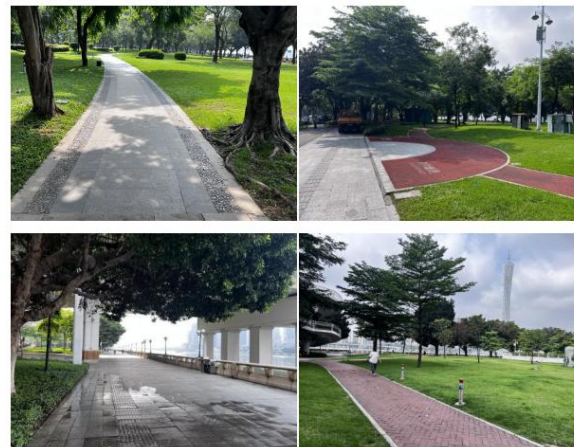


Figure 4. Park road paving. Source: author's own work.

The different road pavements made of various materials provide suitable paving solutions for different areas of Guangzhou Riverside Linear Park. They not only fulfill the transportation needs but also integrate with the landscape design, creating a beautiful, comfortable, and safe road environment. They offer visitors a pleasant experience for walking, resting, and engaging in physical activities.

4.2.4. Landscape Plant Configuration

The current landscape plant configuration in Guangzhou Riverside Linear Park is diverse and includes a variety of species such as *Terminalia mantaly*, *Ficus microcarpa*, *Ceiba speciosa*, *Bauhinia variegata*, *Ligustrum × vicaryi* Rehder, *Fatsia japonica*, and Redflowered *Loropetalum*. Among the tree species, *Terminalia mantaly* and *Ficus microcarpa* are the most common and dominant.



Figure 5. Classification of garden plants.

With their graceful tree forms and lush canopies, they add greenery to the park and provide visitors with comfortable shade. In addition to the trees, the park also features

several shrub species, with *Ligustrum × vicaryi* Rehder and *Fatsia japonica* being the most prominent. These species contribute to a bright and warm atmosphere in the park. The plant configuration forms a rich sense of layering and plant community in Guangzhou Riverside Linear Park. They not only enhance the park's natural beauty and color but also provide visitors with an opportunity to connect with nature, allowing people to relax and enjoy the beauty of the natural surroundings. Figure 5 depicts the current plant species in the park.

4.2.5. Other Facilities

1) Signage System

The current signage system in the park is relatively limited, but overall, it is able to meet the basic needs of visitors. Mileage markers are placed on the rubberized running track, providing convenient references for runners to track their running distance and progress. Such signage not only offers guidance for physical activities but also adds enjoyment and a sense of challenge to running. Additionally, some signage boards are installed in the lawn area to attract visitors' attention and convey relevant information. These signs include slogans, safety reminders, environmental conservation initiatives, and more, aiming to guide visitors' behavior and enhance awareness of protecting the park environment. Figure 6 illustrates the current state of signage in the park.



Figure 6. Sign in the garden.

However, the relatively limited signage can still potentially make it difficult for visitors to navigate and find specific areas within the park. To provide better guidance and direction, the addition of more directional signs is necessary as an improvement measure. By placing clear and informative signs, indicating different areas and facilities, visitors' convenience and experience can be enhanced, reducing instances of getting lost or wasting time.

2) Trash can

The current number of trash bins in the park is relatively limited, but overall, the park grounds remain clean and tidy. There is no littering observed among the visitors, which reflects the public's environmental consciousness and civic etiquette. The visitors are aware that it is their responsibility to keep the environment clean, so they actively seek appropriate places to dispose of trash or take it out of the park. This conscientious behavior not only shows respect for the park environment but also helps maintain the overall image and hygiene of the park.

In addition, park staff regularly perform cleaning duties to ensure the park's cleanliness. They are responsible for collecting and emptying the trash bins, as well as sorting and disposing of the garbage, to maintain the cleanliness and hygiene of the park. The efforts of the staff provide visitors with a clean and comfortable environment, allowing them to better enjoy the park's scenic beauty and leisure experiences.

As the number of visitors increases, it is still worth considering the improvement measure of adding more trash bins to better meet the needs of visitors and further promote environmental protection and hygiene management in the park.

3) Seat

The park provides a rich selection of seating options, particularly along the riverside promenade where benches are placed approximately every 15 meters. This layout ensures that pedestrians can find a comfortable seat to rest and relax while enjoying the river view. The benches are made of sturdy and durable stone material, featuring a simple and comfortable design, providing pedestrians with an ideal place to take a break. In the greenway paths section, the spacing between the seats is not as dense as along the riverside promenade, but it still adequately meets the needs of pedestrians. The placement of the seats along the paths integrates with the landscape elements, creating a pleasant environment for relaxation. Pedestrians can conveniently find suitable seating along the paths during their leisurely walks, providing them with great convenience. Figure 7 depicts the current state of the seating arrangements.



Figure 7. Garden seating.

4.3. Advantages and disadvantages of current situation

Based on the current status of Guangzhou Riverside Liner Park, Table 1 outlines the advantages and disadvantages of the park's landscape and roads, along with improvement suggestions.

Table 1. Advantages and disadvantages of current situation.

Type	Advantages	Disadvantages	Suggestions
Riverside Walkway	The road is spacious and flat, allowing visitors to walk easily. Adjacent to the river, visitors can simultaneously enjoy the magnificent river view and beautiful green landscapes. Resting benches are placed along the way, providing opportunities for visitors to pause, rest, and admire the scenery.	Lack of sufficient shading facilities, especially during hot weather, visitors may feel less comfortable.	Addition of some shade and cooling facilities to provide better sun protection and heat reduction effects.

Greenway Path	Laid on the green lawn, it gives a sense of closeness to nature. Provides a comfortable and peaceful walking environment.	Lack of informational signage makes it difficult for visitors to obtain information about the facilities along the way.	Set up information signs or guide boards to indicate the facilities along the way, making it convenient for visitors to obtain relevant information.
Rubberized Running Track	Providing a safe and comfortable place for citizens to jog and exercise. With elastic characteristics, it reduces impact on the body and provides a comfortable exercise environment.	Some sections of the running track are heavily worn.	Regular inspections and maintenance by relevant personnel are necessary to ensure that the performance of the running track meets safety standards.
Landscape Structure	The architectural style is consistent with the overall style of the park. The statues of runners serve as great motivation for citizens to exercise. The landscape flower beds also add color to the park. Rainwater collectors effectively utilize water resources.	The design of the pavilions fails to provide sufficient shade and shelter from rain. The amount of collected rainwater is limited.	Add landscape structures that combine aesthetics and practicality, allowing citizens to appreciate them while also enjoying the convenience they provide.
Landscape Plants	The landscape plantings are diverse and abundant, providing ample shade.	Improper maintenance of the grassland affects its health and visual appeal. Lack of consideration for seasonal changes results in certain plants lacking visual impact during specific seasons.	By strengthening plant maintenance and management, considering seasonal changes, and regularly updating and pruning the plants, we can further enhance the quality and attractiveness of the current landscape vegetation, providing visitors with a richer visual experience and opportunities to connect with nature.
Other Facilities	The signage and trash bins meet the basic needs of pedestrians. The running track is equipped with distance and calorie consumption indicators, providing a good user experience for runners. There are ample seating areas, providing sufficient resting places for pedestrians.	The lack of signage may make it difficult for visitors to navigate and find specific areas within the park, as it lacks guidance and direction. With an increasing number of visitors, insufficient numbers of trash bins may result in littering within the park. The seating areas have a similar	Install signage boards at important intersections and junctions, indicating the names and distances of various directions and destinations, to help visitors navigate and reduce the occurrence of getting lost. Adding a sufficient number of trash bins can be accompanied by incorporating design elements that blend

		appearance and lack design appeal and novelty.	with the park's aesthetics. Designing some playful seating options can cater to the usage by children.
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5. Human-Centric Optimization Strategies

5.1. Improvement Strategies for Greenway Continuity and Accessibility

To optimize the continuity and accessibility of the greenway system, ensuring the connectivity and convenience of the greenway network is crucial. Through planning and design, a well-established network of interconnected pathways and organized transportation should be implemented to ensure seamless transitions between different greenways and enhance the overall coherence of the greenway system. To improve the continuity and accessibility of the Guangzhou Riverside Linear Park, the following measures can be taken:

Firstly, establish a more comprehensive pathway network by ensuring a rational layout of greenway paths within the park through planning and design. Incorporate landscape elements such as trees, shrubs, and flower paths to integrate the paths into the natural environment while maintaining their continuity.

Secondly, implement clear signage and wayfinding. Install distinct signage and markers within the park to guide visitors along the greenway paths. These signs can indicate various attractions, service facilities, nearest exits, restrooms, etc., providing convenient navigation information to help visitors easily access and utilize the greenway system. Additionally, strengthen pathway connections and transportation organization to ensure close integration between the greenway and the surrounding transportation network. For example, establish bike lanes and pedestrian walkways near the park, connecting them to major roads and transportation hubs, allowing residents to enter the park from different entrances and smoothly connect with other modes of transportation, such as public transportation and private vehicles.

Consider structural designs that overcome transportation barriers. Incorporate bridges, tunnels, or underground passages within the greenway system to cross roads, railways, or rivers, ensuring continuity and safety. These structures can provide a secure and convenient means of passage, allowing the greenway system to form a cohesive whole.

Lastly, provide parking and transfer facilities. Establish parking lots and public transportation stops near the park, facilitating the use of various transportation modes by residents to access the greenway system.

By implementing these optimization measures, the continuity and accessibility of the greenway system in the Guangzhou Riverside Linear Park can be improved. Residents and visitors will be able to enjoy fitness, leisure, and sightseeing activities more conveniently along the greenway, while also promoting sustainable urban development and enhancing the quality of life for residents.

5.2. Enhancement Strategies for Greenway Landscape and Environmental Quality

Emphasizing the landscape quality of the greenway system is essential to create a pleasant environment and distinctive landscape features. By utilizing local natural and cultural resources and employing suitable vegetation, landscape elements, and art

installations, a visually appealing and comfortable greenway environment can be established to enhance people's perception and enjoyment.

Firstly, diversify the landscape vegetation communities within the park's greenway system to create a rich and varied vegetation landscape. When selecting tree species, it is important to consider varieties that are resilient to the unique climate conditions along the riverbank. These climate characteristics include high soil moisture, strong winds, and specific lighting conditions. Therefore, tree species must be chosen based on their ability to adapt to these soil and climate conditions. Furthermore, selected tree species should also possess ecological functions such as flood protection, water purification, and bird habitat attraction [8].

Secondly, configure landscape communities based on the characteristics of seasonal plants to make the greenway system more visually appealing. Spring can feature dominant trees complemented by flowering grasses and shrubs, creating a landscape of blooming flowers swept by the spring breeze. Summer can showcase lush green tones, with tidal flats as the foundation and complemented by green trees and fragrant meadows, creating a captivating landscape. Autumn can revolve around color-changing leaves, accompanied by fragrant fruit trees, to create a riverside landscape where birds flock and autumn triumphs over spring. Winter can showcase the beauty of artistic conception, highlighting the unique scenery of Lingnan in winter by highlighting the characteristics of flowers, plants, and trees [8].

Thirdly, create landscape highlights such as sculptures, art installations, viewing platforms, and rocks, incorporating Lingnan characteristics. These landscape elements can become iconic structures in the park, enhancing its aesthetics and appeal, and providing visitors with unique viewing and photography experiences.

Lastly, strengthen environmental protection measures. Develop environmental protection measures and management plans, enhance waste sorting and recycling, control noise and air pollution, and protect and maintain the park's ecological environment. Additionally, strengthen patrols and security management to maintain the overall environmental quality of the park.

By implementing these strategies, the Guangzhou Riverside Linear Park can improve the landscape and environmental quality of its greenway system. Residents and visitors can enjoy a visually appealing and ecologically rich environment, enhancing their experience and fostering a deeper connection with nature.

5.3. Strategies for Improving Park Facilities and Services

Based on user needs and habits, it is important to plan and establish service facilities that provide convenient services and activity areas. Here are strategies to enhance park facilities and services:

Provide more convenient recreational facilities within the park. Set up amenities such as benches, shade structures, and pavilions along the greenway system to offer visitors places to rest and relax.

Consider adding service facilities such as cafes and restaurants to meet visitors' needs and enhance the park's functionality. These facilities can provide food and beverage options, creating a more enjoyable experience.

Strengthen safety measures and maintenance. Enhance safety facilities, such as increased patrols, surveillance systems, prominent warning signs, and emergency call

devices, to improve the safety within the park. Strengthen park management and maintenance to ensure the health and cleanliness of the greenery.

Establish visitor service centers or information desks. Provide visitors with information, guided tours, and first aid assistance. Incorporate smart technology applications to enhance park facilities and services. For example, install vending machines or mobile payment facilities for visitors to conveniently purchase food and drinks. Offer free Wi-Fi coverage to provide internet services.

Enrich the park with cultural and artistic elements. Integrate cultural and artistic elements, such as art installations, into the park to enhance the aesthetic appeal and cultural experience of the landscape.

These measures aim to improve the comfort, convenience, safety, and cultural richness of the park, making it an ideal place for leisure, social interaction, and cultural experiences.

5.4. User Engagement and Needs Assessment

The design of greenways is centered around people, emphasizing the principles of humanism in greenway planning. This approach aims to enhance the usability of future greenways, ensure the rationality and adaptability of greenway planning, and meet the genuine needs of residents [7]. To ensure the efficiency of future greenway utilization, regular citizen surveys should be conducted to understand their opinions and suggestions. Such surveys help collect feedback from citizens regarding their evaluation of the greenways, their needs, and expectations, enabling appropriate improvements and adjustments.

Regular surveys can gather feedback from citizens on aspects such as satisfaction with the greenways, frequency of use, facility needs, and sense of safety. The survey results provide valuable information to understand citizens' expectations for the greenways, identify issues, and determine areas for improvement. Regular needs assessments also enhance citizen engagement and a sense of ownership, making them aware that their voices and opinions play a significant role in the development and improvement of the greenways. This participation establishes effective communication channels between planners and citizens, promoting collaboration and shared responsibility to create greenway spaces that meet citizens' needs. Through citizen engagement and collaboration, greenways can truly become people-centered spaces, providing residents with a healthy, comfortable, and enjoyable leisure environment.

6. Conclusions

Adhering to the humanistic ideology and integrating it into planning practices is a key approach to enhancing the quality and functionality of urban park and greenway systems. By emphasizing public participation and collecting residents' needs extensively, and by constructing a greenway network that aligns with citizens' aesthetic preferences, it is possible to meet the demands of urban residents for green spaces. This promotes physical and mental well-being, social interaction, and prioritizes the sense of participation and experience for citizens. Simultaneously, it emphasizes the display of the city's image and culture, making continuous efforts to drive sustainable urban development.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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