

Innovative Application of Spatial Stitching Strategy in Hohhot's Urban Design

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Abstract: Hohhot's long-term plan is to build a modern regional central city, create a beautiful landscape of "Beautiful Qingcheng, Prairie City", and become a leading demonstration city for ecological civilization and high-quality development in Inner Mongolia. In the overall urban design of Hohhot, the spatial stitching strategy has been innovatively applied. The strategy solves the problem of urban space fragmentation and achieves the organic integration of urban space by organically connecting urban functional areas, public spaces and transportation networks.

Keywords: Spatial stitching strategy, Urban master planning, Green urban design, Ecological corridor, Public space.

1. Overview of spatial stitching strategy and Practice

Many cities around the world have adopted the strategy of spatial stitching in practice and achieved remarkable results. For example, New York's High Line Park, and Atlanta's Loop Project are all successful cases. The key to their success lies in their full utilization of urban relics, transforming them into public spaces that achieve the organic stitching of otherwise fragmented urban areas.

New York's High Line Park has turned an abandoned elevated railway into a unique urban park, becoming an ideal place for citizens to relax [1]. These international experiences can provide valuable references for Hohhot, suggesting that innovative urban planning and design can achieve the organic suture of Hohhot's spaces, enhancing residents' quality of life and improving the city's overall appearance.

2. Basic Situation of the Case and In-depth Analysis

2.1 The Evolution of Hohhot's Urban Space

Hohhot, which originated as Yunzhong Commandery during the Warring States period. After the founding of the People's Republic of China, Guisui City was renamed "Hohhot City," becoming the political, economic, and cultural center of the Inner Mongolia region. To date, Hohhot has experienced a transition from a "dual city" pattern to dual city integration and then to an inclined grid-type urban pattern.

After years of construction, Hohhot has gradually matured, and various functional areas have initially achieved their positioning. However, the fragmented functional areas, and the lack of necessary interactive connections between functional areas have caused a series of problems.

2.2 A Serious Separation between Nature and City

As a city that integrates mountains and rivers, Hohhot is unique in that it is surrounded by Daqing Mountain and the Yellow River to the south [2]. Its internal water systems, such as Xiaohei River and Zhadagai River, which makes the city rich in natural landscape resources. However, there seems to

be a lack of dialogue and exchange between the landscape and the city.

2.3 Transit Traffic Interrupts Spatial Continuity

Many regional traffic arteries on the Beijing-Tibet Expressway run through Hohhot. Since the establishment of the Beijing-Tibet Expressway in 1996, the improvement of traffic infrastructure has brought significant development opportunities to Hohhot. At the same time, the expansion of these traffic arteries has also led to the fragmentation of urban space.

2.4 Serious Fragmentation Among Different Functional Groups

Hohhot faces significant problems, one of which is spatial fragmentation and lack of centrality. First of all, each characteristic functional group is relatively closed, and there are deficiencies in transportation connections, functional expansion, and environmental co-construction with surrounding areas, resulting in a fragmented feeling within the city. Secondly, market activity shows a certain vitality, but it lacks top-down guidance and control. The life and services in the old and new urban areas are limited to their respective interiors, without forming a high-level public center with leadership.

In terms of characteristic functional groups, there is a problem of lack of organically connected transportation networks with surrounding areas, resulting in significant isolation between functions. This closure not only restricts the overall coordinated development of the city, but also restricts residents' mobility within the city, making it difficult for residents to enjoy diversified urban services and conveniences.

2.5 Weak Sense of Overall Spatial Form

Due to its long history, Hohhot has formed a number of "node business cards" with distinctive era and regional characteristics under the development orientation and project development ideas of different periods. However, due to the lack of overall guidance of spatial form by top-level design, these image business cards lack a systematic structure and sense of sequence at the urban macro scale, and fail to achieve

effective spatial series and integration. The transition between different nodes is relatively blunt, and the image of the city appears unclear.

3. Introducing Spatial Stitching Strategy into Hohhot's Overall Urban Design

This overall urban design of Hohhot focuses on enhancing the synergy between various functional areas of the city, paying special attention to the stitching role of key elements such as ecology, transportation, function, and spatial form in Hohhot's space. The design concept aims to shape the spatial structure of "mountains and rivers entering the city, one ring, two centers, and cross corridor axis", making full use of green natural resources to emphasize organic integration and create an urban environment with a more overall spatial experience.

3.1 From the Ecological Perspective, the "Holistic" Suturing Strategy of Urban Foundations

Drawing on the spatial stitching strategy, the technical method of using ecological landscape elements to suture urban space aims to optimize the relationship between urban space and peripheral ecological space. By strengthening the "dialogue" between the city and nature and cleverly changing the role of ecological space, areas originally considered negative are turned into positive spaces, making ecological space a "flexible" adhesive between various functional sections in Hohhot. Reimagine the relationship between landscape and city from a macro scale.

3.1.1 Reshaping the landscape corridor leading to mountains and rivers

It relies on the Yellow River, with internal water systems of the Xiaohei River and Zhadagai River. It relies on the ecological corridor along the Yellow River to create a Yellow River ecological protection and high-quality development zone. The urban water system corridor composed of the Yellow River tributaries such as the Xiaohei River and the Hun River connects various nature reserves. land to form an ecological network. Focusing on opening up multiple structural green channels in a grid format to form an ecological network connecting mountains and rivers.

3.1.2 Build an ecological park belt around the city

In the boundary of Hohhot and its buffer space, Daqingshan, Chilechuan Grassland and Silk Road Park are gathered together, forming rich ecological resources. Urban green wedges and ventilation corridors connect urban parks with surrounding countryside and natural spaces to build a green open space system that blends urban and rural areas, enabling residents to "see green within 300 meters and gardens within 500 meters" and enhance the "sense of green gain". Build a green open space system of "two belts, six corridors and nine wedges".

3.2 At the Transportation Level, the "Connectivity" Stitching Strategy of Urban Space

Drawing on the transportation stitching technology method in the spatial stitching strategy, it is expected to weaken the

original urban traffic partition by weakening or even eliminating traffic segmentation elements, patching up area transportation networks, and transforming transportation space into public space. At the same time, we need to think systematically on a macro scale and consider how to reconstruct the city's transportation system, use a multi-level road network system to support the construction of cities with a population of one million, and give full play to the city's function as a comprehensive node city^[3].

3.3 At the Functional Level, the "Composite" Stitching Strategy for Business Activities

Drawing on the functional suture technology method in the spatial stitching strategy, through the combination and division of labor of multiple public centers, we are committed to establishing a public center system with highly complex regional functions and complementary business characteristics. Seeking to transform the existing urban space characterized by fragmentation and single-functionality^[4]. To promote the growth of both old and new urban areas, the creation of dual north-south public centers is proposed.

4. Conclusion

Hohhot has applied the spatial stitching strategy in urban design, integrating urban spaces organically. By constructing ecological corridors and optimizing transportation, which enhanced the city's layout and how functions are distributed. This strategy has also provided insights for urban renewal in other cities, driving further development in urban design strategy and practice.

References

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