



Analyzing the Influence of Historic Buildings on Neighborhood Renewal Based on Aesthetic Perspectives-- Taking the Renovation of the White Pagoda Temple Historic Neighborhood in Beijing as an Example

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Abstract. This paper conducts field research on the aesthetic characteristics of the buildings in the White Pagoda Temple Historic Block in Beijing, such as color characteristics, spatial scale, facade style, etc., and analyzes the update of the color characteristics, spatial scale, facade style of the White Pagoda Temple Historic Block with the help of relevant software such as color impact4, GIS, etc. In order to explore in detail the advantages and disadvantages of the aesthetic renewal of the White Pagoda Temple Historic District and its suitable design strategy. The demonstration shows that the White Pagoda Temple Historic District, as the central axis of the cultural development of Beijing West City, has accumulated rich and varied traditional wisdom in the process of its formation. However, due to the lack of overall design strategies, its outstanding aesthetic characteristics are affected negatively. This paper provides some feasible strategies for the current situation of the White Pagoda Temple Historic District.

Keywords: White Pagoda Temple; Historic District Renewal; Color Characteristics; Spatial Scale; Facade Style; Design Strategies.

1 Introduction

With the rapid economic development and orderly urban expansion, as well as people's growing needs for a better life, whether the renovation of historical neighborhoods is beautiful and comfortable has gradually become the focus of urban planning and development. As the political, economic and cultural center of China, it is especially important to consider the impact of historical buildings in the urban expansion of Beijing. As clearly stated in the Beijing Urban Master Plan (2016-2035), "to strengthen the planning and control of the three-dimensionality of the urban space, the coordination of the planes, the wholeness of the landscape, and the continuity of the cultural lineage, in order to provide the public with a rich, pleasant, and vibrant urban public space". Therefore, analyzing the relationship between Beijing's historical buildings and their surrounding urban public space is of great significance in guiding urban transformation. So, this study selects the White Pagoda Temple in Beijing as a case study to analyze its

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relationship with the surrounding neighborhood space, so as to provide appropriate guidance for the analysis of the transformation of historical buildings and the surrounding neighborhood space.

In various studies examining the aesthetic characteristics of historic buildings and their relationship to the surrounding neighborhood, several key factors have emerged as significant. These include the color, spatial scale and form, as well as the façade style of the buildings. Research has shown that the transportation function within the neighborhood is crucial, particularly in the case of the White Pagoda Temple. When considering color characteristics, studies have highlighted the importance of aligning the color patterns of historic districts with their surrounding historical environment. Similarly, investigations into façade styles have underscored the need to deeply explore the region's historical and cultural aesthetics while updating architectural styles. The visual impact of these renovations is also significant, as architectural aesthetics can greatly influence the visual quality of a cityscape. Studies conducted in Iran and Valencia Seranosta, for instance, have emphasized the role of visual quality in shaping the identity of key cultural buildings and creating a new sense of place that balances traditional images with a higher visual quality. Overall, these findings underscore the importance of considering multiple aesthetic and functional factors when approaching the renovation and preservation of historic buildings and their neighborhoods.

Existing research indicates that the White Pagoda Temple in Beijing, as a significant historical node, significantly impacts the transformation and repair of its adjacent neighborhoods. However, limited studies have analyzed this transformation concerning the temple's aesthetic features, such as color, spatial scale, and façade style. The study is to understand their current state and explore suitable colors, spatial scales, and façade styles for the surrounding areas. Consequently, valuable references and data support are provided for future renovation and renewal efforts in the neighborhoods, ensuring harmonization with the temple's significant aesthetic characteristics.

2 Research Methodology

The writing of this thesis is mainly based on a large number of literature studies and field research on ancient architectural spaces. The author will adopt the methods of literature analysis, field research and inductive analysis to extract some useful suggestions and conclusions for urban development, forming a theory-practice-theory research method.

2.1 Color Characteristics of the White Pagoda Temple

The White Pagoda Temple was built by Anigo in the Yuan Dynasty and is located at Beijing Xicheng District Fuchengmennei Street No. 171, in the area of the White Pagoda of Miaoyingsi Temple, occupies an area of about 37 hectares with a building area of about 242,000 square meters. Due to the influence of the master plan, many ancient buildings have been preserved, forming a group of buildings with mainly low spaces.

Moreover, Beijing is the ancient capital of five dynasties, with relatively complete urban planning and smooth roads, forming many comfortable spaces. As shown in Figure 1.



Fig. 1. City plan of the White Pagoda Temple area Source: Author's own drawing

For Beijing is the capital of the Yuan Dynasty, the architectural form is mostly governmental buildings, and there is a very obvious difference in color with the southern buildings. Influenced by geography and natural factors and history and culture, Beijing official-style ancient buildings are mostly red, sky blue and other colors, such as the White Pagoda in the Myo Ying Temple in front of the gate, the bell and drum tower, the Heavenly King's Hall, the Hall of the Great Consciousness, the Hall of the Seven Buddhas and the Pagoda, and other buildings of the overall color are dominated by the color of red. As shown in the picture, in the main body of the building, more vermilion color, while using a more simple gray tile. In addition, blue and green colors are used in the shaded parts of the building, such as the eaves, to contrast with the red color of the sunlight. As shown in Figure 2.



Fig. 2. Yamamado Source: Author's own photo

Inside the building, myo ying temple building complex as a whole is more than chee shang lu ming zuo, internal beams and columns of the structure of a glimpse, in the beams and columns, painted with xuanzi color painting, to green, green, black as the main color, at the same time compared to the and the seal paintings, its use of gold is very little, only to do the eye of the use of. In the Da jue Bao dian and the Seven Buddha's Bao dian there are ceilings inside, and for the relatively high grade of the Panlong Algae Well and Pingqi, in terms of color, similar to the Xuanzi painting newspaper, the overall use of cyan, in the Algae Well of the Panlong use of gold as a punctuation mark, and in the interior of the Pingqi, the use of the red flower pattern to make the building more colorful and lively, and give people a sense of warmth.

In summary, the White Pagoda Temple building as a whole to vermilion as the theme color of the building, the use of green, gold to embellish, making the White Pagoda Temple area of the overall architectural highlights with the White Pagoda Temple area.

2.2 The Spatial Scale of the White Pagoda Temple

The concept of spatial scale has been widely used since it was proposed. Spatial scale refers to the scale perception of buildings and their surrounding spaces based on artificial scale standards. The spatial scale can be roughly divided into three levels: between people and buildings; Between buildings; Between buildings and cities. In the White Pagoda Temple area, the street space enclosed between buildings has a very important impact. However, in the design of external space, Luyuan Yixin proposed the concept of street height width ratio, and when $D/H=1$, the space will have a certain sense of enclosure but will not appear depressed.



Fig. 3. Baita Temple Street Map

As shown in Figure 3, the width of the street around the White Pagoda Temple is roughly 5.5 meters, the height of the hard hill is 4.1 meters, the left side of the wall is about 3 meters, and the height to width ratio of the street is about 1.34, the overall building gives a slight sense of detachment, but due to the ancillary facilities outside of the building makes the street scale become narrower, and forms a more comfortable street space.

2.3 The Façade Style of the White Pagoda Temple

The White Pagoda Temple was designed and built by Nepalese craftsman Anigo in the Yuan Dynasty, which inherited the architectural style of Tibetan Buddhism in its style. The pagoda is 51 meters high and consists of three parts: the base of the pagoda is a three-story square Sumeru seat, and the body of the pagoda is a mantle type, in addition to which there are also thirteen phases of the wheel on the pagoda, symbolizing thirteen heavens, which is the highest rule of Tibetan Buddhism, thus demonstrating its significance. As a whole, many of the buildings of the Myo Ying Monastery still retain the traditional Chinese architectural form, both in terms of plan form and façade style. As shown in Figure 4.



Fig. 4. Roof of the main hall

On the façade, from the gate at the entrance to the Hall of Seven Buddhas, the traditional three-part architectural form and the hipped roof were adopted, and the whole building was restored in the Qing Dynasty, so it retains relatively more features of the Qing Dynasty, and the arches between the columns are very dense, serving as a decoration.

3 Analysis Of Results

3.1 The Color Style of the Surrounding Area

The composition of color mainly includes hue, lightness and chroma (purity). The three affect the embodiment of color respectively. Hue (H) directly represents the color of color; The lightness (B) represents the lightness and darkness of the color. Different lightness and darkness of the same color will give people different feelings. The lower the lightness, the lower the visual impact in the environment, and the more difficult it is to attract attention; Chroma (S) reflects the brightness of colors^[1]. The buildings in

the area around the White Pagoda Temple are classified into nine color types, and the number measured is 200. The data is extracted from the software color impact 4.

Based on this, colors in the same environment can be divided into main color, auxiliary color and environment color. In the White Pagoda Temple area of Beijing, the hue (H) of the main color can be mainly divided into red brown (RBr), neutral color (N) and white (W); The auxiliary colors are mainly blue green (BG), neutral color (N), yellow (Y), red yellow (RY) and red (R); As Beijing White Pagoda Temple is located in the west of Beijing, its environmental color composition is relatively small, mainly distributed in green and yellow (GY) and blue (B). In general, the color of the White Pagoda Temple area is mainly neutral, with clear contrast, giving people a simple and elegant feeling, shown in Figure 5.

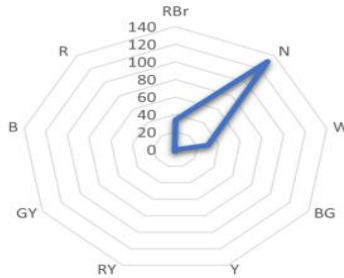


Fig. 5. Distribution source of hue quantity in Baita Temple area Source: drawn by the author

Based on Menzel's color stereo theory, the luminance is divided into nine color gradations from black to white: 0-3 degrees for low luminance, 4-6 degrees for medium luminance, and 7-10 degrees for high luminance. The main color is dominated by medium brightness, followed by high brightness, and finally by low brightness white. Auxiliary colors are generally higher in brightness, mainly high brightness, supplemented by medium brightness, low brightness is relatively rare. The ambient colors are of medium brightness, but their contrast is relatively weak. Overall, the White Pagoda Temple area color highlights the White Pagoda Temple area, the White Pagoda body white and the surrounding buildings form a sharp contrast, shown in Figure 6.

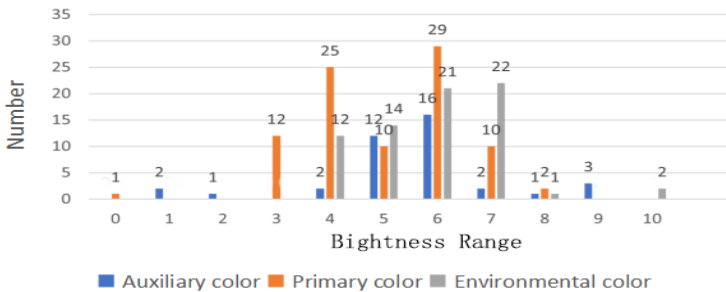


Fig. 6. Baita Temple area brightness interval distribution map Source: drawn by the author

In terms of chroma (S), the chroma is divided into 0-3 low chroma, 4-6 medium chroma and 7-10 high chroma. The chromaticity of the main color is mainly medium low chromaticity, supplemented by high chromaticity; The low chroma of the auxiliary color accounts for the largest proportion, followed by the medium chroma, and the high chroma is the least, but its overall chroma gap is small; The proportion of environmental color low chroma is the highest, followed by medium chroma, and high chroma is the least. Overall, the auxiliary color highlights from the main color and the environment color, and the overall color contrast is strong, shown in Figure 7.

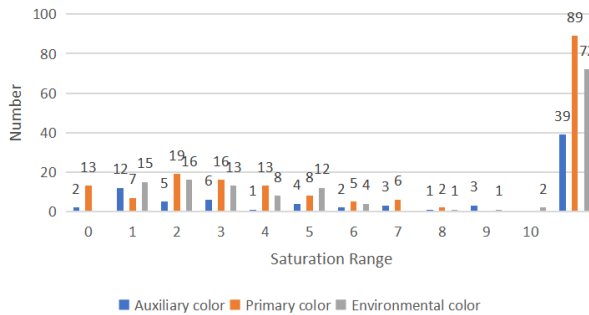


Fig. 7. Color interval distribution map of Baita Temple area Source: drawn by the author

The color of the buildings in the White Pagoda Temple historical block is relatively concentrated. The neutral color is mainly concentrated in folk houses, and the chroma and lightness are relatively low. The color of the internal buildings in the White Pagoda Temple is relatively bright, and the chroma and lightness are obviously higher than those of folk houses, forming a contrasting block color. On the whole, the theme color hue is dominated by neutral color (N), the chroma is dominated by low and medium chroma, that is, the range from 0 to 6, and the brightness is dominated by high brightness. The neutral color tone of the surrounding buildings highlights the status of the White Pagoda Temple, but it also makes the feeling inside the block too flat, lacking diversity in color.

3.2 Spatial Scale Study of the Surrounding Area



Fig. 8. Street map of Baita Temple area Source: Author's own drawing

The street of Baektasi can be subdivided into five parts: street length, street width, street height/width ratio, street space function, greening and ancillary space. In the plan form, it is influenced by successive dynasties, basically keeping the regular street form^[2], shown in Figure 8.

The road is basically planned in the direction of south and north, and the width of the road is mostly 4-6 meters. According to the design of Luyuan Yixin's external space, when the street width/building height along the street (D/H)=1, a relatively comfortable street space is formed. there are about 71 streets in Baitasi area, 40 streets within 1-3 meters, accounting for 56% of the total, and the D/H is about 0.5. The sense of scale is relatively oppressive, and only the details of buildings along the street can be seen. However, because most of the streets are residential areas, the narrow roads also promote the communication of residents to a certain extent, with a strong sense of enclosure. The number of 4-6m streets is 26, accounting for 37%. These streets are mainly responsible for the traffic, parking and other functions within the White Pagoda Temple block. Most of the buildings on the street are also for commercial purposes. It can be seen that the streets are mainly public spaces. The sense of scale in the streets is relatively comfortable, and the atmosphere of ancient buildings can be seen directly. In such streets, the White Pagoda Temple can be seen directly. As shown in Figure 9.

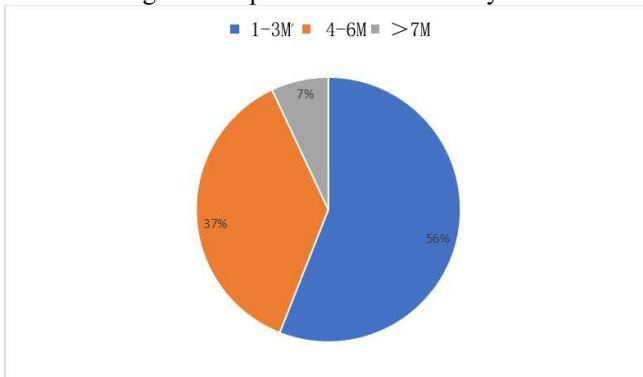


Fig. 9. Proportion of road width Source: drawn by the author

On road length. "The upper limit of the continuous uninterrupted length of a street is about 1,500 meters, beyond which people lose their sense of scale."^[3] , At the same time, a person in a street feels comfortable when there are only buildings that he can watch, and when the person's line of sight is 500 meters away, he sees things blurred, and within 250-270 meters, he gets a good visual experience. Among the 71 hutongs, the proportion of relatively comfortable streets is the largest, amounting to 56, which makes people or get a good visual experience. As shown in Figure 10.

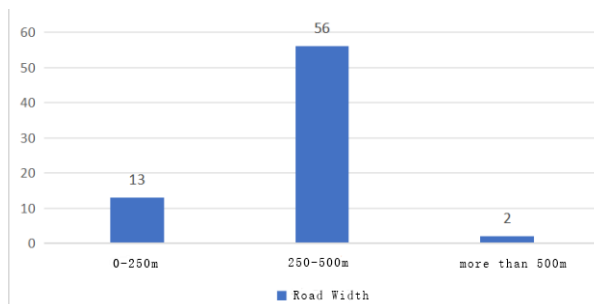


Fig. 10. Road length range Source: drawn by the author

Street mixed pedestrian and vehicular, vehicular space and pedestrian space intertwined together, the overall chaos, according to the norms, the minimum width of the sidewalk for 1.5 meters, the carriageway for 3 meters, but because of its improper planning, the overall width may be lower than the total width of 4.5 meters. In addition to parking, some sundry piles, the width of the internal space will be more chaotic, shown in Figure 11.



Fig. 11. the human-vehicle space map Source: drawn by the author

In terms of accessory space, the public toilets have no front room and are directly connected to the external space, which directly leads to the negative impact of public toilets on the external space. There are about 40 public toilets in the Baektasi area, but they are unevenly distributed, mainly in the entrance of the Central Palace neighborhood in the map, followed by the Northwest, and the least in the Northeast, which is the largest number of public toilets in the area^[4].

3.3 Study of Façade Styles in the Surrounding Area

Building façade is the external image of a building, which directly affects people's perception of the building, so the study of building façade in historic districts is necessary

for the renovation of historic districts. Yoshinobu Ashihara, in "Aesthetics of the Street", categorizes the appearance of buildings into "primary contour lines" and "secondary contour lines", and the beauty of building elevations is mainly determined by "primary contour lines", "secondary contour lines", "secondary contour lines", and "primary contour lines". The larger the proportion of "secondary contour lines" is, the more the "primary contour lines" are covered or obscured, and the greater the impact on the aesthetics of the building façade^[5].

The buildings in the White Pagoda Temple Historical Quarter are mainly based on traditional Chinese architecture. In terms of elevation, traditional Chinese architecture attaches great importance to proportion and maintains a three-part style on the whole, i.e., the foundation, the body, and the roof, and the proportions of the three are harmonized and united^[6] In the area around the White Pagoda Temple, due to the fact that there are mostly residential buildings, the architectural style of the Yuan Dynasty is not preserved. In the area around the White Pagoda Temple, due to the fact that it is mostly residential, it does not retain the architectural style of the Yuan Dynasty, but rather the architectural style of the Ming and Qing dynasties with hard hills of masonry and rolled roofs with a small number of modern flat roofs. Although it enriches the skyline of the city as a whole, it also brings a very obvious sense of historical rupture due to its haphazard style, shown in Figure 12.



Fig. 12. Architectural style of the White Pagoda Temple area Source: drawn by the author

According to what was said before, the distance that people feel better about the neighborhood is within the range of 250-500 meters, based on this, the author took the White Pagoda Temple as the center, with a radius of 250 meters as the statistical range, and researched about 500 buildings on the street, among which 423 buildings with sloped roofs took up a great proportion, 193 buildings with hard roofs, 218 buildings with rolled roofs, 4 buildings with hipped roofs and 8 buildings with resting hills. There are 78 buildings with flat roofs and 1 building with other styles of roofs, shown in Figure 13.

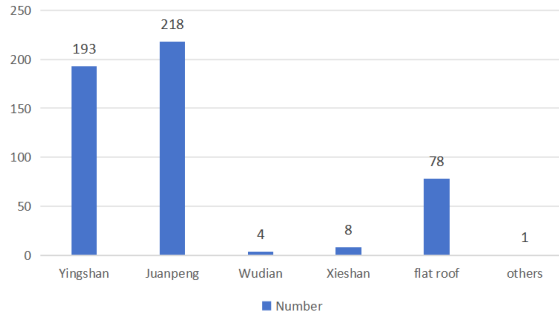


Fig. 13. Roof style of Baektasi area Source: Author's own drawing

In the case of the roof of a traditional building, the proportions of the building itself are determined to a large extent by the roof, i.e., the roof determines the proportions of the building^[7]. Traditional Chinese architecture is a frame structure, which can get rid of the heavy load-bearing walls. The traditional Chinese building is a frame structure, which can get rid of the heavy load-bearing walls, so on the roof, most of the windows and doors and other glass materials, and the roof constitutes a sharp contrast between reality and reality. The proportion of the foundation in the traditional building façade is quite small, basically does not affect the beauty of the façade.

Although the primary contours of traditional buildings in the Baektasi area are harmonized, the impact of the secondary contours, which are made up of a number of frames, should not be overlooked. The secondary contour line refers to the building components that protrude from the building facade, which is not the contour line of the building itself. These elements, such as air-conditioning units and downpipes, make the Baektasi neighborhood look cluttered.

In conclusion, the White Pagoda Temple, as the core of the area, has a unique architectural façade that contrasts with the surrounding buildings, naturally attracts people's attention, is well-focused and harmonized, but the style of its façade has been affected and undermined by the accessory structures.

4 Update the Response

4.1 Strategies for Updating the Color Character of the Baita Temple Area

4.1.1 Community Participation

The color renewal of the historic district of the White Pagoda Temple must not be free from the will of the people. Residents, as users of the historic district, have a direct feeling for the color of the historic district of the White Pagoda Temple, the designer as a planner must not ignore the needs of the residents. In the color design, questionnaires and survey groups can be used to collect residents' opinions and suggestions on the color update, so that the color update can be decided by the decision makers, architects and residents.

4.1.2 Interior Lighting Design

The overall color of the White Pagoda Temple Historic District is dominated by neutral colors, which emphasizes the three-dimensionality of the buildings and the sense of coldness, which lacks vitality for the long-term residents. In the architectural design and renewal, the glass area can be enlarged, and the interior of the building can be transparent with warm colors, which can enrich the overall color tone of the historic district, and at the same time, make the district not look too monotonous.

4.1.3 Compensating for Ambient Color

There is a relative lack of plants in the White Pagoda Temple Historical Quarter, and in winter, the falling leaves also make the interior environment color scarce. On the whole, when designers consider, they should give full consideration to the choice of plants to make up for the lack of environmental color in the White Pagoda Temple Historic District, and they can adopt evergreen plants such as seasonal greens.

4.2 Spatial Scale Renewal Strategies for the Baita Temple Area

4.2.1 Placement in Public Space

Although many public spaces, such as the White Pagoda Temple Parlor, have been updated in the White Pagoda Temple Historic District, overall there is still a lack of public space. It is possible to adopt an open space layout to improve the permeability and mobility of the interior of the building, and to consider creating open social spaces in areas such as building atriums or corridors to enhance the interaction between the building and the community. Let the building is not limited to the building, the street is not limited to the street, the two form a dynamic connection.

4.2.2 Respect for History

The White Pagoda Temple Historic Block, as a large historical building group reserved in Beijing, must retain the historical charm of its block space scale when it is updated. First, respect the scale and proportion of the original building to ensure that the updated building is visually harmonious with the surrounding environment. Secondly, in terms of the height width ratio of the street, the height of the surrounding buildings should not be changed too much, and the overall D/H should remain at 1.

4.2.3 Introducing Appropriate Changes

The roads in the White Pagoda Temple Historic District are too straight, which has certain advantages, but also leads to a lack of spatial interest. Under the premise of respecting the history, the streets of Baita Temple Historical Quarter should be changed appropriately to break the state of one glance to the end and ensure the mobility of the neighborhood. Or we can use some bamboo, resting seats and other accessories to block the view, so that people's sight distance in the street is not more than 500 meters and lead to the loss of the scale of the neighborhood.

4.3 Strategies for Updating the Façade Style of the Baita Temple area

4.3.1 Renewal of Historical Memory

While updating the façade of the White Pagoda Temple Historic District, local materials should be used, and the façade should be consistent with that of the surrounding buildings, without destroying the historical lineage of the complex^[8]. Secondly, under the premise of maintaining the consistency of the overall façade style, the use of some modern elements as embellishments, so that the building is further revitalized, and the residents or tourists feeling the street renewal.

4.3.2 Renewal of Façade Elements

As the main composition of the "secondary contour line" of the subsidiary components, which largely undermined the aesthetics of the building façade, and secondly, the residents of the disorderly use of the exaggerated advertising stores have made the building façade is further damaged. In this case, a unified planning should be carried out, and when updating, the location of necessary facilities such as air-conditioning units and pipelines should be reserved; advertisements and other commercial publicity facilities should be unified in color tone and consistent with the surrounding buildings in terms of style.

4.3.3 Placement of Modern Elements

The neighborhood around the White Pagoda Temple is dominated by historical buildings, but the surrounding area of the conservation area is dominated by modern buildings, and the overall sense of separation between the buildings of different eras is strong. In the historical neighborhood of the White Pagoda Temple, certain modern elements can be put in to make up for the gap between the two. Such as the use of modern lighting technology, custom-designed lighting fixtures, so that it is coordinated with the architectural details, highlighting the architectural features at night. Secondly, the use of solar panels, vertical wind power generation devices and other modern facilities to improve the renewability of historical buildings, to achieve the integration of modern and historical.

5 Conclusion

White Pagoda Temple area, as the central axis of Beijing's cultural development in the western part of the city, has an important historical value and cultural value. The restoration and renewal of the White Pagoda Temple Historic District is of great significance. Based on this, the renovation and updating of the White Pagoda Temple Historic District is of great significance. This paper provides data support for the updating of the White Pagoda Temple Historic District, and provides theoretical and data support for the updating of the White Pagoda Temple Historic District in Beijing and the construction of the White Pagoda Temple Fine Line.

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