

Study on the Changing of Traditional Urban Fabric in Shanghai Old Town

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Abstract

During the regeneration process of historic built environment in the megacities like Shanghai, traditional urban fabric and modern urban fabric have different spatial characteristics. The traditional urban fabric in Shanghai, which is represented by Lilong houses, can offer highly shared public and semi-public spaces in daily life. Unfortunately, after nearly 20 years of large-scale renewal process, there is only about 40% of the traditional urban fabric retained in Shanghai Old Town, which deeply depends on the delineation and planning requirements of Historic Conservation Area. In the past two years, in the planning of core conservation zone, Shanghai tries a new reconstruction way by demolishing old house and building new house with similar height and density as the former ones, to maintain the urban fabric and improve the environment quality. Taking Luxiangyuan as an example, the spatial pattern was inherited to a certain extent, the style and the elements of new house echoed with Lilong buildings. This paper finds that confronting with the challenges of disappearing traditional urban fabric, the former planning and “fabric reconstruction” practice has certain limitations, such as the disappearance of the high sharing character of roads and alleys.

Keywords

Traditional Urban Fabric, Changing Process, Shanghai, Old Town

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INTRODUCTION

Among the different areas of historic city, the old city centre contains rich diverse characteristics and can provide high sharing spaces. Its value relies on the traditional urban fabric. As a main research object, traditional urban fabric relies on the definition of urban fabric from international debates. The similar attitude to what constitutes a building, as well as a repetitive division of land, similar height regulations, unified local form and a long lasting scale, all create the urban fabric¹. Urban fabric is not only a specific, visible and operable physical object, but also connects political, economic and social level functional activities, and reflects the corresponding historic context and cultural atmosphere, thus shaping a city its unique characteristics². So urban fabric can integrate with different morphological elements like blocks, roads, and buildings, reflects the overall special morphological characteristics of any region. Based on the spatial relationship formed by blocks, roads streets, and buildings, the urban fabric can be divided into two categories: traditional urban fabric and modern urban fabric. Each has different characteristics: traditional urban fabric is enclosed, dense, compact, and continuous, and the modern urban fabric is open, fragmented, diffuse, loose, discontinuous, heterogeneous, and disrupted³.

As any study of either urban fabric type is a kind of case-dependence research⁴, during the regeneration process of Shanghai built environment, there are two kinds of main urban fabric types occurred in Shanghai old town. The typical modern urban fabric is a closed defended island mainly contained high-rise residential buildings. And the typical traditional urban fabric is the Lilong housing block, which created a specific urban fabric type and image, and kept providing highly shared public and semi-public spaces in daily life. Existing studies have shown that Lilong Housing makes Shanghai traditional urban fabric unique. It contains specific values such as “small-scale space”, “close spatial connection”, and “semi-public linear space”. Its high sharing characteristics can promote the occurrence of various activities⁵.

However, in the process of urban renewal and development, Lilong Housing without legal protection is often regarded as the target object of old district reconstruction, which means Lilong Housing is eliminated, and should be demolished. But existing studies paid less attention to morphological characteristics change and its value change of the historic area's urban fabric. This studies focused more on its evolution process in the historic stage⁶, discussed the planning methods and countermeasures on specific buildings, streets and neighbourhoods⁷, studied the architectural and public space design methods to realise sharing in historic area⁸ and so on. In the “Historic Conservation Area” of Shanghai relating to urban conservation, a new kind of renewal mode has appeared which is called fabric reconstruction. The first case of this mode was take place in Shanghai Old Town, named Luxiangyuan Project. Its goal is to achieve the reconstruction plan, and preserve the characteristics of traditional urban fabric at the same time. However, the real impact of this new mode is still needed further study to examine whether it focused on the high sharing value of historic fabric.

METHOD & CASE DESCRIPTION

Through data statistics, literature and planning documents review, field investigation and interview, the protection plan and the effectiveness of latest “fabric reconstruction” renewal method was examined to find out whether the high sharing characteristics of the traditional urban fabric was maintained during historic built environment renewal process.

By understanding the spatial relationship of the blocks, streets and buildings formed historically, associated with the age and height of the buildings, the traditional urban fabric can be identified from historical maps and Google satellite images. The urban morphology of Shanghai has collage characteristics obviously. As the area where Shanghai was founded as a county in 1291, Shanghai Old Town was the only area in this collage city that reflects its 700-year development history from urban morphology. Shanghai Old Town is the root of Shanghai⁹. The low-rise buildings, narrow alleys, and winding streets, which form its urban fabric characteristics and help to shape the cultural characteristics¹⁰. Therefore, this study takes Shanghai Old Town as a case, studies the maintenance condition of traditional urban fabric and its designated protected streets. The Historic Conservation Planning for Shanghai Old Town approved in 2005 delineated the scope of the Shanghai Old City Historic Conservation Area. The conservation area was with a total area of 1.9 km². This paper will focus on this specific area.

THE FORMATION OF TRADITIONAL URBAN FABRIC

In Yuan Dynasty (1291), Shanghai changed from a town to a county. From then until the port opening in 1843, this area had been Shanghai’s politics, economy, and culture centre. It was surrounded by city walls, had dense water networks and the roads were distributed along the river, representing a typical Jiangnan county feature from the perspective of urban form.

After being opened as a port, the concession rapidly made Shanghai a prosperous centre. By the 1920s, with the transformation of Shanghai into a Special Municipal and the launch of “Great Shanghai Plan”, Shanghai Old Town had evolved from the political and cultural centre of the city to the edge of the metropolis¹¹.

From 1906 to 1914, by filling the rivers to build road, a free-form network of roads was created in Shanghai Old Town. The outer ring road was formed by demolishing the city wall from 1906 to 1914, to make better connection with concession and find more opportunities to promote the economy of old town. After the demolishment of city wall and the establishment of better roads system, the urban population increased and real estate developed. An abundant of Lilong housing influenced by the concession architecture appeared in 1920-30s in Shanghai Old Town, while the traditional Jiangnan -Style courtyard house were partially demolished or left vacant. Lilong housing became the main buildings of this area, and the organic road and street system made the uniqueness of traditional urban fabric in this area.

THE VALUE OF TRADITIONAL URBAN FABRIC AND ITS STRUCTURAL ELEMENT

According to the related studies and the Conservation Planning of the study area, the intertwined streets, winding lanes, diverse architecture types, and the complicated commercial market networks along the streets had formed the unique traditional urban fabric characteristics. The road system constructed by filling rivers, and the small-scale branching lanes system both reflected the formation process of traditional urban fabric in Shanghai old town. With the ring road (Renmin Road and Zhonghua Road) formed by the demolition of the city wall as the boundary, the Shanghai Old Town constitutes a centre area with clear boundary and relatively complete form. There were diverse architecture types inside this area, such as temples, Jiangnan traditional courtyards and mainly Lilong housing.

Conzen's research¹² on urban form shows that the most permanency factor of urban tissue (plan unit) is streets and their systems. The parcel of land with its buildings and open place undergo continuous transformation and replacement during the process of change¹³, but the shape and orientation of streets are relatively stable. Public places and streets are important, and the core value of public life is publicity. Different groups of people meet and communicate face-to-face there, which has educational and tolerant meaning¹⁴. 'The narrow, bent and shaded streets provide suitable public open space for the social activities of the local residents and their children.'¹⁵

In Shanghai Lilong housing block, there is usually one central lane and other side lanes connected to the central lane shaping the street system like a fishbone. And study shows that 'the central lane commonly provided all inhabitants a shared common space'¹⁶, through which residents can reach the appropriate side lane to enter their apartment. The central lane and side lane are both narrow, and are used differently by different residents, giving its high sharing character not only among the residents but also without isolation to the public. The lanes of Lilong housing is an important public and semi-public space with high sharing. It is a structural element that constitutes the traditional urban fabric. Therefore, it is necessary to maintain its direction, scale and network density to preserve its value of high openness and sharing.

THE CHANGING PROCESS AND THE CURRENT SITUATION OF TRADITIONAL URBAN FABRIC AND ITS STRUCTURAL ELEMENT

Before the founding of the PRC in 1949, the spatial form of Shanghai Old Town still maintained relatively distinct characteristics as before, only a bit of blocks were destroyed in the war and new dwellings had been built while kept similar fabric.

From 1949 to the 1990s, industrial layout and urban development in Shanghai were away from Shanghai Old Town, so it remained traditional urban fabric without huge changes inside the old town. The whole area kept the traditional urban fabric character.

In the 1990s, according to the roads planning proposed by its District Government, the reconstruction of main roads started since 1993. By 2000, the road network was basically formed. Within the old town range, the construction of two 40m-width roads with horizontal and vertical direction in the centre cut the whole area into four part. Meanwhile, the urban fabric of the study area was cut off. During this period, there were some single high-rise building reconstruction projects, such changes did not overturn the main morphological character, and most of the traditional urban fabric were retained, except the blocks along the main roads.

From 2000 to 2005, although the development of Pudong and the adjustment of administrative divisions of Huangpu and Nanshi Districts made Shanghai Old Town marginalized again, the urban central location made it high land value, resulting in the massive construction of high-rise residential buildings. The real estate projects similar with the suburb high-rise housing community appeared in the blocks along those widened roads in Shanghai Old Town.

In November 2005, the Shanghai Municipal Government approved the Historic Conservation Planning for the Shanghai Old Town Historic Conservation Area. After 2005, the changing speed of traditional urban fabric became slower obviously. However, in recent 2-3 years, a new kind of renewal mode called “fabric reconstruction” occurred under the regulations of the new-built building height in the Conservation Planning, such as Luxiangyuan project.

Based on the topographic maps and Google satellite maps, the analysis results show that until September 2019, the total area of the traditional urban fabric is about 75.08 hectares, accounting for 37.59% of the total area of Shanghai Old Town Historic Conservation Area. While the total area of modern urban fabric is about 61.28 hectares, accounting for 30.68% of the entire area in 2019. (Tab.1, Fig.1)

Sorts	Traditional fabric		Modern fabric		Greenland		Roads		Vacant areas	
	Area	Proportion	Area	Proportion	Area	Proportion	Area	Proportion	Area	Proportion
	hm ²	%	hm ²	%	hm ²	%	hm ²	%	hm ²	%
Total	75.08	37.59	61.28	30.68	11.37	5.69	41.45	20.76	10.54	5.28

Table 1. Statistical table of current area and proportion of Shanghai Old City Historic Conservation Area.

In the process of transforming traditional urban fabric into modern urban fabric, it provided space for new real estate projects mainly through merging small plots and blocks, resulting great changes on a large scale. Thus, the former streets network disappeared completely with the demolition and reconstruction process. According to the roads layout of different years restored from historical maps, it shows that street and central lanes density has dropped from nearly 25km/km² in 1949 to 19.7km/km² in 2018, with a decrease of 20.95% (Tab.2, Fig.2).

Time	Streets amounts	Decrease percent (%)	Total length (km)	Decrease percent (%)	Streets dense (km/km ²)	Decrease percent (%)
1949	240	-	49.59	-	24.92	-
2004	210	12.50	43.87	11.53	22.04	11.56
2018	169	19.58	39.22	20.91	19.70	20.95

Table 2. Statistical table of number variance in streets and alleys of Shanghai Old City Historic Conservation Area

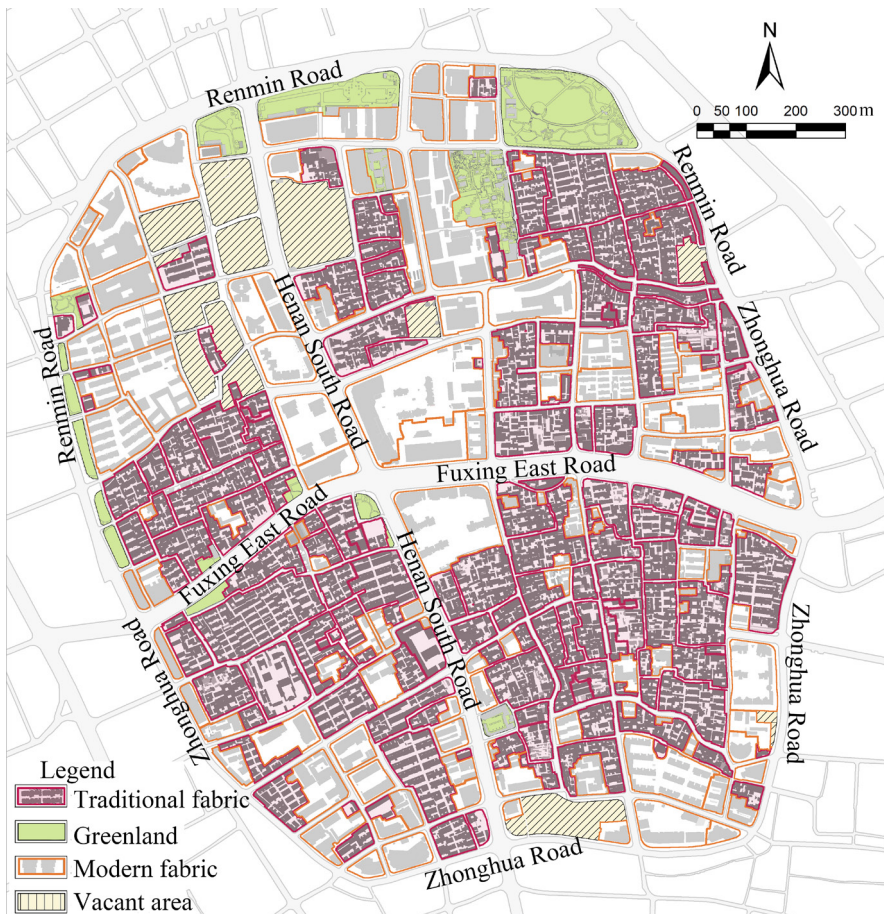


Fig. 1. Current status of traditional fabric conservation in Shanghai Old City Historic Conservation Area.



Fig. 2. Road network evolution of Shanghai Old City Historic Conservation Area in 1949(left), 2004(middle), 2018(right).

As conclusion, since the widening project of the two main roads (Fuxing East Road and Henan South Road) began in 1994, the urban fabric of Shanghai Old Town began to change quickly. It has to confess that the whole morphological feature has overturned from a majored traditional urban fabric into modern urban fabric from 2000. The historical features of a traditional Jiangnan town are facing disappearance.

THE EVALUATION OF THE EFFECTIVENESS OF CONSERVATION AREA PLANNING

Shanghai Historic Conservation Area is a policy zone where conservation and preservation is the primary focus and urban regeneration is the secondary focus. The ring road was the boundary of Shanghai Old Town Conservation Area that was the site of former city wall. Compared with the traditional urban fabric transformation inside and outside the Conservation Area, the outside area changed much more than the Conservation area. The area along the Huangpu River has almost totally changed from similar traditional fabric to modern fabric with many high-rise buildings, resulting the entire waterfront area morphological characteristics overturned (Fig.3).

This study sorted out the revised public notice documents of the regulatory detailed planning inside and outside Conservation Area from 2005 to 2021. Among them, there were two latest planning announced in 2020 revised nine blocks of the former Conservation planning announced in 2005 of Shanghai Old Town. There were three newest planning (announced in 2009, 2014, and 2019) regulated the building height and floor-area ratio in Dongjiadu Area nearby Shanghai Old Town relating to 30 blocks. Six planning and 24 unreconstructed plots are involved in total until July 2021. Based on the collected data, the floor-area ratio data could divide into two groups according to whether the plot is located in the conservation area or not. It can be calculated through the Independent Sample T test. The Sig. value of floor-area ratio and building height regulation are both less than 0.05(Tab.3), indicating that there is significant difference between the two groups. Above all, the floor-area ratio of the regulation of new reconstruction project was quite different between the ones inside and outside (nearby) the Conservation Area, although they have similar traditional urban fabric historically. Thus, the Historic Conservation Planning has played an important role for protecting the historic features, and making constraints of development projects.

Time	Streets amounts	Decrease percent (%)	Total length (km)	Decrease percent (%)	Streets dense (km/km ²)	Decrease percent (%)
1949	240	-	49.59	-	24.92	-
2004	210	12.50	43.87	11.53	22.04	11.56

Table 3. Independent Sample T test between the Conservation Area and its nearby. Species 1=plot located in Shanghai Old Town, inside the Conservation Area; Species 2= plot located in Dongjiadu area nearby Shanghai Old Town, outside the Conservation Area. (output from SPSS)

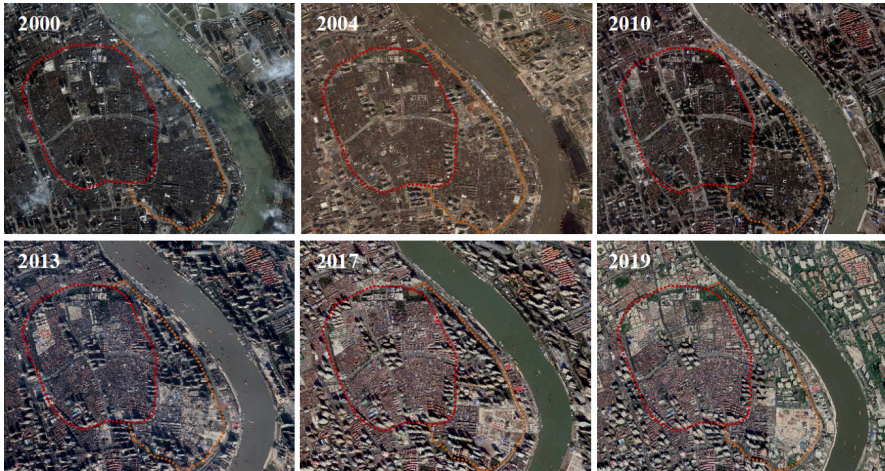


Fig. 3. Satellite map of Shanghai Old City area in 2000, 2004, 2010, 2013, 2017 and 2019. The red ring road is the boundary of the Historic Conservation Area; and the area named Dongjiadu Area is the waterfront area outside the Conservation Area shown in orange colour. The modern fabric appeared year by year, and these maps show the higher changing speed and amount outside the ring road than the area inside the ring road.

Another conservation tool in the Historic Conservation Planning is the protected roads and streets with historic-features. The Planning approved in 2005 identified two protected roads and 34 protected streets in study area. Based on the investigation on both sides of the road (Zhonghua Road and Renmin Road), it is found that the historic features of buildings along the road with about 1.7 km in total length (32.7% of 2 roads total length) have disappeared. Among the 34 protected streets, 21 streets have basically preserved the historic feature. The historic features of seven streets were damaged to a certain extent, the street h-w ratio (height to width ratio) was damaged, and these streets were typed as partially damaged streets. The sense of place of 6 streets was totally changed, although the street h-w ratio was kept, they were typed as weak protected (Fig.4). All the 6 weak protected streets were located in the new-reconstruction area, inside or around the new Luxiangyuan project. By surveying residents of nearby Lilong housing whether they get better public space after the new-built community is built, 100% of the interviewers gave the negative critics. Some of them thought the new-built community do not have any relationship with them. Some thought the former community full of local facilities were replaced by the strange new community with none local facilities.

EVALUATION OF THE EFFORTS OF THE “FABRIC RECONSTRUCTION” METHOD

The newest planning (announced in 2020) shows that the plots in the core conservation area were regulated to reconstruct low-rise buildings with height up to 16 meter. While the new-built building in the blocks located in the whole Conservation area but not in the core conservation scope can reach 85-100 meters (Fig.5). Luxiangyuan project were built with similar building height and density as former buildings in the core conservation scope. It can be figured out that

compared to the former Lilong housing, the urban fabric of new-built buildings of Luxiangyu-an project is more orderly, less dense and compact, with more modern urban fabric character.

Based on the field investigation, the former high sharing streets and lanes are not open anymore, including the designated protected streets, so they were typed as weak protected in this research (Fig.4). At each entrance, there are some doorkeepers checking the identity of the visitors. It shows the biggest problem of the “fabric reconstruction”, which is the designated protected streets are not public to everyone anymore and the entire new reconstructed area has no sharing character from the sense of place(Tab.4).

As we know, the lanes and streets of the traditional urban fabric have high sharing quality. After this kind of reconstruction, the real historic building and the sharing character with them were both replaced by a pure townhouse community. The small plots of groups were merged into a big “gated-wall” community, as same as the high-residential building reconstruction projects.

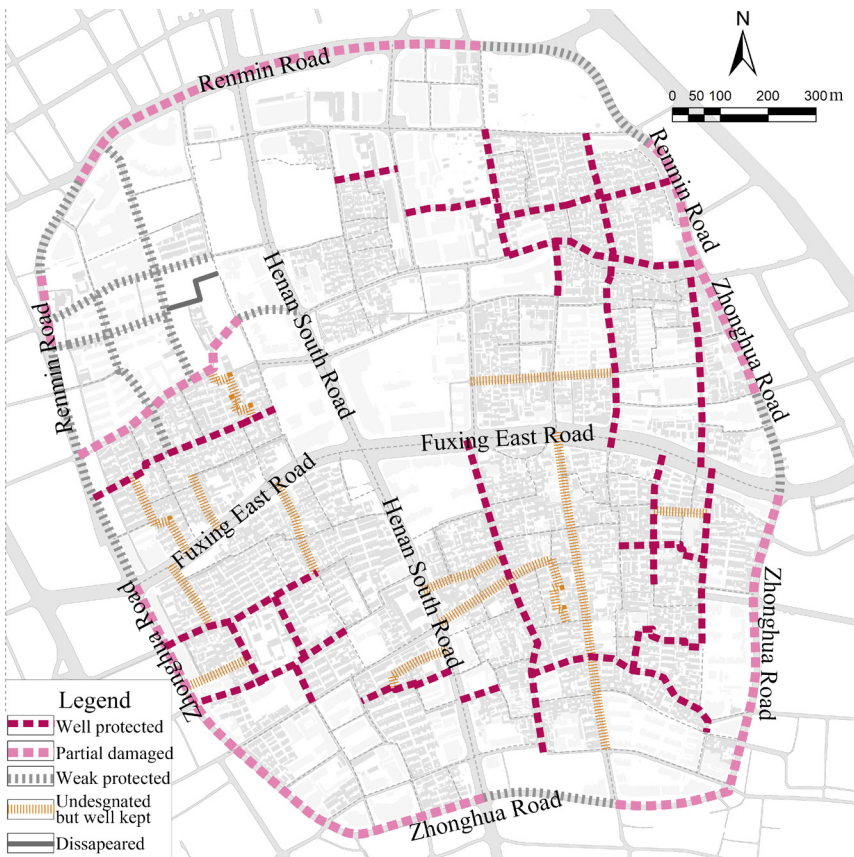


Fig. 4. Preservation situation of historic feature of streetscape in Shanghai Old Town Historic Conservation Area. The streetscape changes a lot along the newly-built blocks, whether it is protected roads (streets) or not. While some undesignated protected streets keep the historic feature of streetscape.

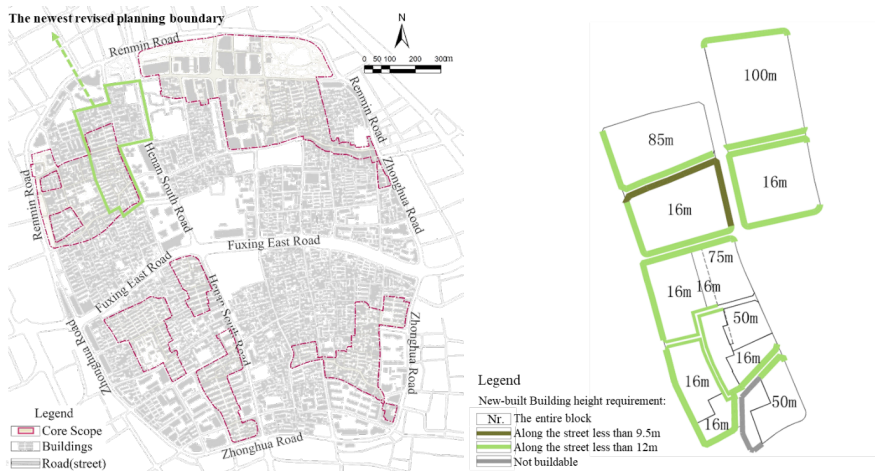


Fig. 5. The newest regulation of new-built building height announced in 2020 and the relation with its location compared to the core conservation scope.

The private gate of every townhouse	The gated wall of the similar side lane
<p>The entrance with doorkeeper to check visitors 'identity of the central lane (the former designated protected street reconstructed into pure private roads not accessible anymore)</p>	

Table 4. The “gated” new “fabric reconstruction” project made designated (in 2005) protected street private as a type of weak protected

CONCLUSION

Since the implementation of the conservation planning in 2005, the drastic changes of urban morphology has been contained. During the period of great changes in urban morphology of Shanghai in the past 20 years, there is still about 40% of the traditional urban fabric retained in Shanghai Old Town, which heavily depends on the delineation of the scope of Historic Conservation Area and its planning requirements. It partly control the elimination and transformation speed of the traditional urban fabric than other unprotected areas. The core scope enacted more strict regulations of new-built building height than the ones outside the core conservation scope. The building height along the designated protected streets are also regulated strictly to preserve the kindly h-w ratio of the street.

While the conservation planning also has certain limitations. Firstly, in 2005, when the Conservation Planning was made, the area of the traditional urban fabric was more than 60% of the whole area. But the core conservation area, which means inside this scope should strictly control new construction and reconstruction activities, was only totally 27% of the entire area designated in the Conservation Planning. More than half of the traditional urban fabric retained in 2005 were not designated into the core conservation scope. The plots that had already been demolished or under construction projects were also not designated into the core conservation scope. Actually, there is a large gap between this planning and the international practices, particularly those in France. According to the Marro Law, from the date when the relevant authorities issued a decree and delineated a conservation area, considering whether it meets the requirements of the conservation and value enhancement plan, all construction projects that may affect the state of the buildings must apply for and obtain permits to further construction¹⁷. The current implementation of conservation planning is not effective enough for the control of new constructions outside the core conservation zone in order for traditional fabric continuation.

Secondly, the limitation of the conservation planning itself. It involves little tools to reflect the human's sharing needs for the historic resource. Even the newest "fabric reconstruction" project also only keep the dense and building height as former demolished Lilong housing, but without any strategy to keep the high sharing character value of the former traditional urban fabric. It would be a pity if the remaining traditional urban fabric is not conserved and regenerated more carefully in the future. It is necessary to truly realize the importance of integrated conservation and maintain the multiple values of traditional urban fabric. It is still a huge challenge to effectively improve the livelihood of the residents and play the high sharing value role of the traditional urban fabric in the old town at the same time in the further research.

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ENDNOTE

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