A Historic Institutionalist Research on the Protection of Plot Pattern in Chinese Historic Cities, taking Nanjing as an Example

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1 ABSTRACT

Land plots are widely recognised as an essential conservation element of historic cities. However, the protection of plot pattern was in a long time neglected in Chinese urban conservation. China's historic cities have experienced drastic transformation since the socialist revolution of 1949, resulting in a fundamental change in traditional urban forms. Based on historic institutionalism theory, the research explores the transformation of protection of plot pattern in Nanjing, a typical Chinese historic city. According to the changes of main institutions, including land development system, regulatory planning system and conservation planning system, the changing roles of plot in urban conservation can be divided into three stages. The three main attributes of plot, including a morphological element, a control unit of land use and a unit of property, have different performances in each stage. However, a path dependence has been formed through the institutional transformations.

Keywords: urban morphology, plot pattern, conservation planning system, urban transformation, China

2 INSUFFICIENT PROTECTION OF PLOT PATTERN IN CHINESE HISTORIC CITIES

Land plots are widely recognised as an essential conservation element of historic cities. The Washington Charter of 1987 proposed that a primary principle for the protection of historic urban areas is to protect the urban pattern composed of plots and streets. However, the protection of plot pattern was in a long time neglected in Chinese urban conservation. China's historic cities have experienced drastic transformation since the socialist revolution of 1949, resulting in a fundamental change in traditional urban forms.[1] In addition to damage to traditional street patterns and building footprints,[2] the historic plot pattern has also been heavily damaged by constant urban renewals and oversized plots in particular have become a prominent feature of contemporary historic urban areas.

The insufficient protection of plot pattern has promoted questions about the role of plot in Chinese urban conservation system. Plot is not only one of the fundamental elements of urban form but also a key apparatus in land development system and planning control which have significant influences on urban conservation. Affected by a series of institutional changes since 1949, the role of plot in Chinese urban conservation had a great transformation, which has fundamentally determined the protection effect of historic plot pattern. Under this background, this research discusses the development and problems of the protection of plot pattern in Nanjing, a typical Chinese historic city. A historic institutionalist framework is established to analyze the changing roles of plot in Nanjing's urban conservation system, and the path dependence of protection of plot pattern generated in the process of change.

3 A HISTORICAL INSTITUTIONALIST FRAMEWORK IN UNDERSTANDING THE ROLES OF PLOT IN URBAN CONSERVATION SYSTEM

3.1 Three attributes of land plots and the essence of plot pattern protection

Although land plot is one of the fundamental elements of urban form within the field of urban morphology, as it is used to refer to several things, it has multiple attributes. According to existing research, there are three main attributes of plot, including a morphological element, a control unit of land use and a unit of property.[3] First, in the field of urban morphology, plot pattern together with street pattern and building footprints constitute three basic morphological elements of a town plan.[4] Despite being invisible, plot pattern reflects

[1] Deng, He, & Hu, "Exploration on integrated conservation of historic city in the new period-the case of Ningbo"; Lin, "Conservation of historic and cultural cities in the context of the new normal"

[2] Chen, " Study on urban morphological evolution of contemporary Suzhou"; Li & Dong, "An integrated research approach on city map decoding based on reshaping decoding of ancient map of Hangzhou city"; Li & Zhao, " The loss and revival of place characters in urban morphology"

[3] Kropf, " Plots, property and behaviour".

[4] Conzen, "Alnwick, Northumberland: A Study in Town-plan Analysis"; Whitehand, "British urban morphology".

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the land property structure of a city, which is the basis of its urban form.[5] Second, with the property right attribute, plot pattern is obviously affected by urban development policies, land development systems, and various urban codes. Third, plot is widely taken as a basic control unit of urban codes such as zoning system, construction planning and conservation planning, taking control of land use, land development intensity, physical form, protected physical entities (such as buildings or open spaces) and so on.

The protection of plot pattern is closely related to the morphological attribute and property right attribute. The traditional plot pattern of Nanjing old city, formed under private land ownership, is basically composed of a large number of small-scale plots, mostly for residential and commercial uses and is characterized by land subdivision. In fact, plot pattern together with street pattern constitute a morphological framework of a historic city, in which land plot defines the scale of urban renewals. Because of such structural importance, plot pattern has longer and stronger impact on the preservation of historic urban form than building fabric. This is the essential reason why plot pattern should be protected in urban conservation system; specifically, the essence of protection is to preserve the morphological framework molded by subdivision of land property. However, despite plot often serving as a basic control unit in urban planning systems, plot pattern itself, in morphological and property right terms, is not necessarily or effectively protected, which can be shown in many cases.[6]

3.2 A historical institutionalist framework in understanding the roles of plot in urban conservation system

Historical institutionalism (HI) is a social science methodology focusing on the innovation, continuation and change of institution in different times. HI concepts and methods has been increasingly more applied to research agenda for planning history, land development, and urban conservation. It includes three relevant definitions including path dependence, critical junctures, and incremental change processes.[7] Above all, critical junctures involve arguments about crucial founding moments of institutional formation; path dependence suggests that institutions continue to evolve in response to changing environmental conditions and ongoing political maneuvering but in ways that are constrained by past trajectories. For city planning there are two sets of institutions that are closely related: institutions of property, and institutions for creating and managing public space and infrastructure.[8] Institutions are not just rules, but include both formal and informal norms, shared understandings, and standard operating procedures. The interdependencies between co-evolution processes among institutions reinforces path dependence; but ideas provide important resources that help actors interpret existing conditions and to frame and advocate alternative approaches.

Based on these theories, a historic instituionalist framework is established to analyze changing roles of plot in urban conservation system (Fig.1). It consists of four components: critical junctures, incremental change processes of main institutions, changing roles of plot in urban conservation system, and path dependence of the protection of plot pattern. The protection of plot pattern in Chinese historic cities are significantly influenced by three institutions, including land development system, regulatory planning system and conservation planning system. Above all, the property attribute is largely defined by land development system; plot serves as a basic unit of regulatory planning system, taking control of urban development; conservation planning system, directly influencing the protection of plot pattern, is a significant component of the master plan and provides a legal basis for historic city conservation.[9] According to critical junctures of the three main institutions since 1949, the transform of roles of plot in urban conservation system is divided into three stages: (1). From 1949 to 1990, a period when land nationalization, planned economy, and urban conservation system was established and implemented in China; (2). From 1990 to 2010, a period when land use right system (LURs) and regulatory planning system were established and developed; (3). After 2010, a period witnesses developments of conservation planing system in Nanjing due to progresses of conservation ideas.

The research aims to answer three questions: (1). The roles of plot in urban conservation system in different stages and their characteristics; (2). The path dependence of the protection of plot pattern in response to

[5] Stimmann, “Berliner Altstadt”.
[6] Whitehand, Gu, Whitehand & Zhang, “Urban morphology and conservation in China”.
[7] Sorensen, “Taking path dependence seriously”.
[8] Sorenson & Xu, “Interview with Andre Sorensen”.
[9] Guo, “Reflections on the Conservation of Historic City of Nanjing”.

changing institutional conditions; (3). The influence mechanism of three main institutions on the protection of plot pattern.

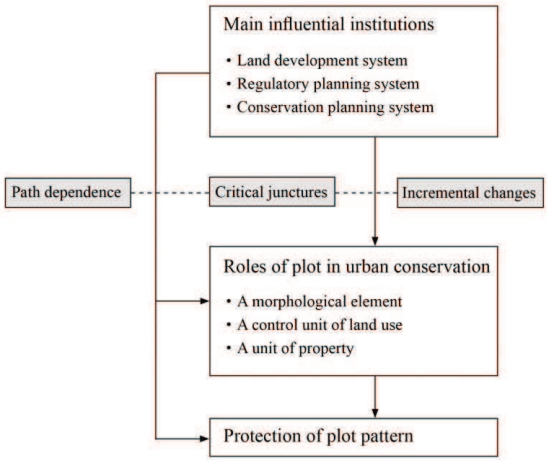

Fig.1 The historic instituionalist framework to analyze changing roles of plot in urban conservation

4 THE CHANGING ROLES OF PLOT IN NANJING'S URBAN CONSERVATION SYSTEM

4.1 Erasing the property right attribute of plot (1949–1988)

China established a command economy and state-owned land system in the 1950s. As the role of the market in distributing land resources had been extinguished, administrative land allocation became the only form of land supply. Until the end of the 1980s, China had no established regulatory planning system or specific plot division procedure for land development; detailed planning, specifically made according to a development plan proposed by the local government, served as the main tool in controlling physical form. Under this background, the role of land plots both as a unit of property and as a unit of control were deprived. They were only regarded as the boundaries of land development, with little impact on the physical form.

Nanjing's conservation planning system was established in 1984 when it was selected as the firstly ratified National Historical and Cultural Cities. In the first conservation plan, four main conservation elements were proposed, including the environment and landscape, urban pattern, architectural style, and protected monuments and sites. However, the focus of conservation was mainly put on protected monuments and landmarks in practices. Plot pattern, deprived of the attribute of property and control unit, was not regarded as a factor significant to the protection of historic urban from.

The conservation and reconstruction of Confucius Temple area started in the middle 1980s was the earliest conservation practices in Nanjing (Fig.2). This area was long as the cultural and commercial center of Nanjing old city, characterized by a landmark cityscape composed of the Confucius Temple complex and the adjacent riverfront commercial and residential area. This historic urban landscape was heavily damaged in the Second World War and reconstructed with modern style buildings after 1949. The conservation program emphasized the restoration of cultural relics and the reconstruction of the landmark building complex according to historic images. However, a majority of traditional commercial and residential buildings in the area were not taken as important components for protecting the historic urban landscape and were demolished for redevelopment. Correspondingly, the historic plot pattern in the area was eliminated and redivided, despite a protection of the traditional street pattern. The general plot width increased to 60m, while a typical traditional plot width in this area was no more than 16m. The plot amalgamation further led to a great reduction in the subdivision of land plots in a block.

4.2 The increasing importance of plot as a unit of control (1988–2010)

The establishment of the Land Use Rights (LURs) system in 1988 reconstructed the land market, greatly promoting the rapid economic growth of China since the 1990s. Chasing economic growth became a primary goal for the local government during this period[10], which was reflected as large-scale land development and

[10] Zhang & Chen, "Understanding Chinese Urban Planning in the Growth-first Politics".

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urban renewal in the old cities. Originally established in early 1990s, the Chinese regulatory planning system was largely regarded as a tool to promote growth and control land development.

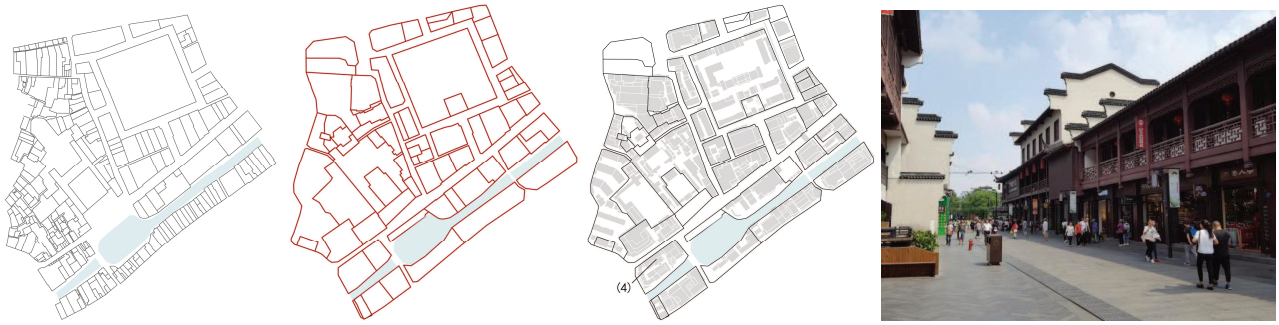

Fig.2 Morphological transformation of Confucius Temple area. Grey lines: original plot pattern; red lines: megaplots as control units; grey mass: building footprints. (1) The original plot pattern, (2) The plot pattern after redevelopment, (3) Overlapping of plot pattern and building footprints after redevelopment, (4) Commercial redevelopment led to an amalgamation of original small scale plots.

Plot serves as a basic unit of regulatory planning to control land use, land leasing, intensity of land development, and physical form of the resulting area. However, in a context of 'growth supremacism', regulatory planning system emphasized the control of land use, land leasing and intensity of land development, while the control of physical form was considered inadequate.[11] First, the principle of plot division are very pragmatic[12], emphasizing the integrity and coordination of land use, and convenience of land leasing. Second, regulatory planners created megaplots in order to attract investment. In Nanjing Old city, a majority of renewed plots are larger than 5000 m², which has caused significant damage to the historic plot pattern.[13] Third, minimum control was exerted over the physical form of urban (re)development. Compared with zoning systems in the United States, for example, many fewer morphological indexes for plot division – for instance, plot size, plot width, and rules of plot arrangement – were well developed in the Chinese regulatory planning system.

Under the background of large-scale renewal of old cities, the urban conservation system in Nanjing had a remarkable progress since the 1990s in which area-based conservation, especially the ideas of historic-cultural conservation areas(HCCAS) was established and became the main approach. The largest progress of HCCAS approach was to recognize the significance of protecting the historic cityscape. Apart from the protected monuments and sites, conservation elements were expanded to historic buildings and structures, historic street pattern and environmental elements. This indicated an expansion of conservation scope; according to the definition of HCCAS, the core conservation scope should be larger than 1ha. In Nanjing Old South area, several vernacular residential areas were designated as HCCAS. Even so, historic plot pattern was not regarded as a conservation element, indicating that its significance as a morphological framework in molding urban form had not yet been fully recognized.

Similar to regulatory planning, plot serves as a control unit in conservation planning. In the HCCAS, some historic buildings are designated for protection; other buildings can generally have a major restoration or even reconstruction. According to the regulation of HCCAS, the proportion of listed monuments and historic buildings should take up at least 60% of the whole area. However, this proportion was much lower in many practical cases. This means a small number of historic buildings together with their plots are designated for protection; the other land plots in HCCAS are merged into several megaplots as control units for reconstruction. As a result, buildings, streets and other environment elements within the control units of reconstruction substantially cannot be effectively protected. As the the historic plot pattern is erased, an inherent morphological framework is lost. Therefore, the reconstruction scheme of street pattern, building layout and building forms tend to be very volatile, far from an authentic historic conservation.

This problem was fully shown in the case of Nanbuting area where the conservation and reconstruction started from 2001 (Fig.3, Fig.4). This is a typical residential historic district, characterized by the national

[11] Huang & Tian, " Morphological division theory and its application in China's old cities"; Gao & Ding, " Correlation analysis on urban morphology and related urban laws and regulations in China".
[12] The technical regulations of Nanjing Regulatory Planning in 2005.
[13] Liu, "Smart Plot Division".

protected monument, Ganxi's former residence.[14] In this case, plot served as a basic control unit of the conservation plan, regulating the conservation phase, listed historic buildings, and urban design of reconstruction. From 2001 to 2010, three phases of conservation and reconstruction had been completed. The whole area was designated into 5 megaplots; in each phase the conservation or reconstruction were carried out on 1 to 2 plots.

In the first phase, Ganxi's former residence with an area of 12000 m² , the most important cultural building relics in Nanbuting area was renovated and re-utilized as a folk museum. The second and third phases were renovation and reconstruction of the periphery area, aiming at commercial redevelopment. Apart from few listed historic buildings, a majority of vernacular buildings, taken as bad conditioned, were demolished for reconstruction. The historic plot patterns were totally erased and amalgamated into megaplots. Above all, the plot size of the second phase was about 8000 m²; and the third phase was about 13000 m². The urban design of reconstruction was based on the megaplots, generating new street patterns and building layouts and integrating antique building with few historic buildings. However, as the conservation plan protected too few historic buildings and neglected the importance of historic plot pattern as a morphological framework, the reconstructed urban pattern showed big differences with the original one. In fact, this is an essential reason why the HCCAS approach in many practical cases failed to protect the historic urban landscape.

Fig.3 Morphological transformation of three stages' conservation work in Nanbuting area. First phase, renovatoin of Ganxi's former residence; second phase, reconstruction of Xi'nan Li district; third phase, expansion of Xi'nan Li district; plot pattern and building footprints of Nanbuting area. Grey lines: original plot pattern; red lines: megaplots as control units; black mass: building footprints

Fig. 4: The megaplot based reconstruction of urban pattern in Nanbuting area shows big differences with its original form (Source: http://www.njcjjt.com.cn/pic/?97_555.html). Birdview of first and second phase renovation; Birdview of third phase reconstruction.

4.3 Rediscovering the morphological importance of plot pattern (2002–)

The conservation plan of Nanjing historical and cultural city was made in 2010 when the vast majority of historic cityscape has been heavily damaged by large-scale urban renewals since the 1990s. The shrinking historic cityscape showed the inefficiency of HCCAS approach in protecting the overall historic urban form. Faced with this problem, the conservation plan of 2010 designated three historic urban areas within Nanjing

[14] Originally built in early 19th with an area of 12000m2, it is the largest traditional residential building complex preserved in Chinese cities.

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old city so that ensemble-scale conservation and restoration could be applied. Specifically, the "ensemble-scale conservation" has emphasized three points: first, a structural conservation of morphological elements, including overall street pattern, river network and the city wall; second, an expansion of the conservation scope from small-scale HCCAs to other general areas, even redeveloped areas; third, a recovery of traditional streetscape and limitation of redevelopment intensity. The ensemble-scale conservation also indicated that the onefold building-centered way of conservation must be changed. As plot pattern not only has direct relationship with the building fabric but also provides a morphological framework for a meso-level historic urban area, its morphological importance was rediscovered and applied into the conservation plan.

Of the three historic urban areas, the Old South historic area, with an area of 6.9 km2 preserves a large number of historic sites—monuments and typical traditional cityscape of Nanjing. In the conservation plan of the Old South historic area, a renewal unit strategy was proposed. The principle of this strategy was to recover the role of plot pattern as a morphological framework of the historic urban area, in which small-scale and gradual urban renewals and restorations could be promoted. Renewal unit has six types with different building types and conservation level, including unit of protected buildings, unit of historic buildings, unit of traditional buildings, unit of general buildings, unit of multi-storey buildings and unit of reconstruction. The scope of renewal unit is generally based on the plot boundary of existing buildings; it defines the maximum scale of renewal that could be made within the unit boundary. In fact, renewal unit serves as the role of morphological framework as the plot pattern, with which large-scale renewal is considered to be prevented and historic urban fabric could be continued. Considering the functional and development requirements, an appropriate amalgamation of neighboring units are allowed on the premise that the courtyard-based feature of building footprints can be maintained.

Renewal unit strategy played a critical role in the reconstruction of Changledu district in the Old South area. This district had been demolished in 2006 and was reconstructed as a high-class residential and commercial area after 2010. As the district is located within the scope of historic core, the reconstruction was planned to restore the damaged urban fabric with antique buildings filled into the pattern of renewal units. The reconstruction was characterized by three aspects: (1). recovering traditional street pattern based on the historic map; (2). recovering morphological characteristics of land subdivision through renewal unit strategy; (3). recovering traditional cityscape through a set of design guidance. The reconstruction was essentially based on a 6 ha megaplot, but the renewal unit strategy largely promoted the subdivision of the megaplot at design level. A majority of renewal units kept the traditional scale of plot width about 10m, but developed a relative small plot depth and north-south orientation in order to meet requirements of contemporary building codes and usage habits. Although the scale and form of new antique buildings were in some parts different from the tradition, efforts were made to keep the courtyard-style building footprints so that new buildings could be well integrated into the historic urban pattern.

As the transformation of street pattern, plot pattern and building footprints shown in Fig.5 and Fig.6, the reconstruction of Changledu district was not a complete return to the traditional urban plan. Through the renewal unit strategy, the significance of plot pattern as a morphological framework was re-introduced into urban conservation system, improving the possibility of small-scale urban renewals. In this sense, renewal unit strategy shows a progress of HCCAS approach. However, renewal unit is only a urban design strategy simulating land subdivision, it did not necessarily lead to a subdivision of land property. As the land development mode and regulatory planning system have no fundamental changes since the early 2000s, the attribute of plot as a unit of property is still not reflected in conservation planning system.

Fig.5 Reconstruction of Changledu district (Source: Fig.5.4 is from Planning Bureau of Nanjing, 2011). (1) Original plot pattern; (2) Renewal unit pattern within a megaplot; (3) Original building footprints; (4) Reconstruction of building footprints.

Fig. 6: Although the building footprints constrained by renewal units simulates the tradition, the building form has significant changes in the megaplot based reconstruction of Changledu district.

Main institutions	-1949	1949-1990	1990-2010	2010-
Land development system	Private land ownership	State-owned land system ; Administrative land allocation system	Establishment of LURs; Establishment of Land banking system	
Regulatory planning system		Detailed planning taking control of physical form	Establishment of regulatory planning system	Improvement of control on physical form with integrating urban design
Conservation planning system		Establishment of conservation planning system; Focusing on protected monuments and landmarks	Establishment of HCCAS approach, namely area-based conservation	Ensemble-scale conservation of historic urban areas ; Renewal unit strategy
Roles of plot in urban conservation	Morphological framework of urban form	Erasion of the property right attribute; Marking boundaries of land development	Plot as a control unit in both regulatory planning and conservation planning	The morphological importance of plot pattern was rediscovered; Renewal unit as a urban design strategy without subdivision of land property right

Tab.1 Changing roles of plot in Nanjing's conservation planning

5 PATH DEPENDENCE: PROTECTING PLOT PATTERN WITHOUT SUPPORT OF LAND PROPERTY RIGHT

The changing roles of plot in Nanjing's urban conservation through the three stages has shown a gradual improvement on the protection of plot pattern. However, a path dependence has been formed since 1949; the protection of plot pattern is a long-term lack of support of land property right. The binding effect of land plot in both morphological and property right terms on urban development can be seen from the historic plot pattern that was formed under private land ownership. As the property right attribute of plot has been deprived because the nationalization of land ownership since 1949, the significance of plot pattern as a morphological framework can not be fully performed in urban development. In addition, conservation strategies without support from land property can not be essentially effective.

Affected by the path dependence, the protection of plot pattern has shown several problems: First, there is a dislocation between the boundary of control unit and that of property unit. As conservation planning tends to exert its control via dividing a historic district into few megaplots, the original small-scale land plots can hardly be recognized and protected, which makes a gradual and bottom-up way of urban renewal very difficult to be carried out. (2). Learning the way of plot division from regulatory planning, conservation planning also designates oversized plots and encouraged reconstruction of antique buildings in most cases, which has led to an extinction of historic subdivision-based plot pattern. (3). The absence of a morphological framework and the megaplot based reconstruction in many cases make the restoration schemes volatile and lack of historic authenticity.

The path dependence essentially results from interdependencies between co-evolution processes among land development system, regulatory planning system and conservation planning system. First, the land nationalization since 1949 erased the property right attribute of plot, which promoted the prevalence of administrative land allocation system and planned economy in the next forty years. Specifically, Chinese historic conservation planning system was established during this period, inherently influenced by the institutional conditions and neglected the significance of plot pattern. Second, the establishment of LURs and regulatory planning system largely reinforced the role of plot as a control unit. In the 1990s and 2000s, plot became a significant tool of conservation planning in applying HCCAS approach, but its morphological attribute and property right attribute were largely neglected. Third, the ideas of urban conservation had big progresses after 2010, which promoted conservation planning to recognize the significance of plot pattern as a morphological framework of urban form. The renewal unit strategy improved the planning control of physical form, but it was in lack of a support from property right level. In addition, plot pattern has yet been

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listed as a protection element in conservation planning system. Consequently, the path dependence still has strong an influence on the protection of plot pattern in Chinese historic cities.

6 CONCLUSION

Based on historic institutionalism theory, the research explores the transformation of protection of plot pattern in Nanjing, a typical Chinese historic city. According to the changes of main institutions, including land development system, regulatory planning system and conservation planning system, the changing roles of plot in urban conservation can be divided into three stages. The three main attributes of plot, including a morphological element, a control unit of land use and a unit of property, have different performances in each stage. However, a path dependence has been formed through the institutional transformations; the protection of plot pattern is a long-term lack of support of land property right. Although the morphological significance of plot has been paid more attention in recent years, due to the erasion of the property right attribute, the conservation strategies are not effective. Therefore, the protection of plot pattern lies in a coupling control of morphological elements and property rights ; in order to exert an effective control on the property right, conservation planning system should be more effectively integrated with regulatory planning system and land development system.

Although an institutional change is generally difficult, a progress of ideas about urban conservation can promote the protection of plot pattern in historic cities. In recent years, the Conzenian school of urban morphology, founded by geographer M.R.G. Conzen, has been introduced into China. This theory developed a very detailed, micro-scale framework for analysis largely organised around the plot. Applying this theory, some research explore the morphological transformation of Chinese historic cities,including the changes of plot pattern, and the value of this theory in urban conservation has drawn more and more attentions.[15] These theoretical development will hopefully further stimulate the sense of protecting plot pattern in Chinese urban conservation practices.

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