

Urban morphological processes in China: a Conzenian approach

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Abstract. *The method of plan analysis developed by M. R. G. Conzen is employed in part of the core of Guangzhou, China. Though the main concern is with the urban ground plan, links are made to two other interdependent components of the townscape or urban landscape: building fabric and land use. Physical changes in the townscape are divided into morphological stages between feudal times and the present day. The geographical structure of the built-up area is explained in terms of morphogenetic types of plan units that express key facets of economic and social processes. Analysis of the processes underlying the development of a specific small area contributes to a wider body of knowledge of Chinese urban form. This perspective is distinct from that developed by historians and architects investigating Chinese urban form.*

Keywords: Conzen, plan analysis, morphological period, plan unit, Guangzhou, China

Some of the most fruitful contributions to understanding the historical development of the form of towns and cities have come from plan analysis (Whitehand and Gu, 2007, p. 91). Developed most notably by M. R. G. Conzen in his classic investigation of the English town of Alnwick (Conzen, 1960), its application has hitherto largely been limited to the Western world. Much remains to be done in other cultural areas. In China, where practically all cities lack analyses of the historical processes of physical change, even the conceptual riches of the Alnwick study remain unknown to the majority of researchers. Recently this deficiency has begun to be rectified (Gu *et al.*, 2008; Whitehand and Gu, 2006; Whitehand and Gu, 2007; Whitehand *et al.*, 2011). However, the limited historical record, especially in the form of true plans, has restricted the depth and precision of research. This was apparent in a

recent exploratory case study of Pingyao, a traditional city in northern China. Though Conzenian plan analysis was successfully applied, the results were much more limited than those of the Alnwick study. However, although the shortage of historical records necessitated a heavy reliance on inference, considerable progress was made towards establishing major aspects of the genesis of the city's layout. Most notably, a major part of the groundwork for the recognition of plan units was completed (Whitehand and Gu, 2007). As an extension of this groundbreaking work, the present paper describes a plan analysis of a small area in the centre of Guangzhou in south China. This city has undergone a more complex transformation process than Pingyao, and is endowed with superior historical records, notably a series of large-scale true plans, the earliest of which

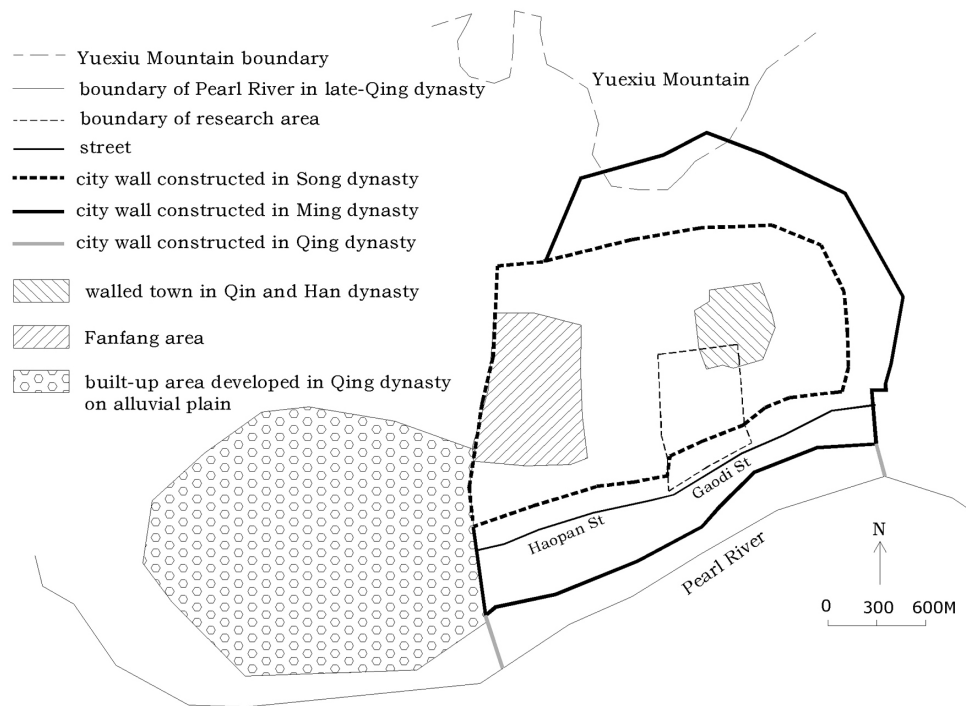


Figure 1. Development of Guangzhou in the feudal period. Based on maps in Zeng, 1991, pp. 281, 440.

dates from the 1920s.

According to Conzen, an urban ground plan is the 'topographical arrangement of an urban built-up area in all its man-made features' (Conzen, 1960, pp. 4-5), containing three elements, that is streets, plots and the block-plans of buildings. It was Conzen who recognized the tripartite division of the urban landscape into first, the plan; secondly, the building fabric viewed three-dimensionally; and thirdly, land use (Whitehand, 2001, p. 104). The plan in a sense enjoys priority as it forms the inescapable framework for other man-made features (Conzen, 1960, p. 4).

Some of Conzen's most valuable ideas were developed in relation to the *process* of urban development. He argued that morphological differentiation arose with changes in individual form complexes. It occurred particularly in response to changes in the functional requirements of society (Conzen, 1981, p. 95). Outward extensions of the urban area and internal changes, have characteristics that reflect the 'morphological periods' into which the history of urban development is

divided. A particular morphological period is expressed in the ground plan as well as the building fabric (Conzen, 1960, p. 7).

Historical geography of Guangzhou

Guangzhou is the largest city in southern China. The arrangement of the original walled town reflects the primary principles of *fengshui*, a Chinese philosophy of siting man-made forms in harmony with the natural environment. To comply with the ideal *fengshui* model, a city has a mountain to its north, and water to its south (Sang, 1992, p. 26). Guangzhou was founded on a plateau, bounded to the north by the Yuexiu mountain, to the south by the Pearl River, and to the west by an alluvial plain criss-crossed by narrow watercourses. These natural features in large degree framed the city's development during the long feudal period (Figure 1).

It may be inferred from the historical record that a settlement of local significance existed before the original walled town was estab-

lished. During the period of Warring States (474 - 221 BC) the town was an active trading base (Zeng, 1991, pp. 203, 206). This old commercial settlement was probably located at the meeting place of the plateau and the alluvial plain. The fertile alluvial mud combined with seasonal flooding would have sustained primitive agricultural development, and the various watercourses would have been advantageous as transportation links for trading.

In 214 BC, during the Qin dynasty (221 - 206 BC), General Ren Xiao founded the walled town on the plateau nearly 1.2 km from the original settlement. A dual core formed, comprising a commercial centre in the west and a political centre in the east.

In the Tang dynasty (618-907), Guangzhou was the most important port in China for international trade, becoming the starting point of commercial East-West traffic by sea. What had been a local settlement developed as a large commercial built-up area accommodating some 120 000 people, most of them Arab merchants. The Chinese referred to this area as 'Fanfang', which means foreign quarter (Zeng, 1991, pp. 230-1) (Figure 1).

In the Song dynasty (960-1279) the town wall was greatly extended and Fanfang was incorporated within the walled area. In this period the watercourses around Fanfang were silting up. Commercial wharves gradually extended south of the city wall to the Pearl River. Near the river bank a long curving commercial street developed, comprising Haopan Street and Gaodi Street.

In the Ming dynasty (1368-1644), the city wall was extended farther, encompassing the whole commercial area that developed south along the Pearl River in the Tang and Song dynasties. As economic prosperity increased, a number of open spaces, including part of the moat, were built over. Trading wharves extended west on to the alluvial plain.

In the late-Ming dynasty and early-Qing dynasty, Guangzhou became engaged in long distance trade. A textile industry developed on the alluvial plain, and the farmland in that area was gradually built on.

Research area

Selection of the research area was based on two principal considerations. First, research in historical depth at the scale of individual plots limits the total area that for practical reasons can be examined. Secondly, a rich residue of forms from a lengthy historical sequence of morphological periods is advantageous.

The selected area comprises approximately 38 ha. It is limited to the north by Zhongshan Street, to the south by Gaodi Street, to the west by Qiyi Street and to the east by Peking Street (Figure 2). North of the city wall of the Song dynasty, which was demolished and transformed into Danan Street in 1920, is the political quarter, formed gradually since the Qin dynasty, south of which is the commercial quarter developed since the Tang dynasty on the marshland along the Pearl River.

Early morphological frames

The long period before the beginning of the Qing dynasty comprises more than one cultural epoch. However, insufficiencies in the cartographical record, especially large-scale plans containing streets and plots, make it impossible to subdivide this long span for morphological purposes. Traditional Chinese cartography was much more concerned with map design as an art, especially pictorial symbolizations (Whitehand and Gu, 2006, p. 342; Whitehand and Gu, 2007, p. 92), than with recording reality. Planimetric information, which is fundamental to urban morphological research in the West (Whitehand and Gu, 2007, p. 92), was minimal. Early planimetric surveys of very small parts of Guangzhou were carried out by Western surveyors during the second half of the nineteenth century, but for most parts of the city map scales were too small to contribute much to plan analysis. These maps showed little more than streets and broad indications of built-up areas. The earliest true plans of the large majority of the city were prepared by Guangzhou Land Bureau between 1926 and

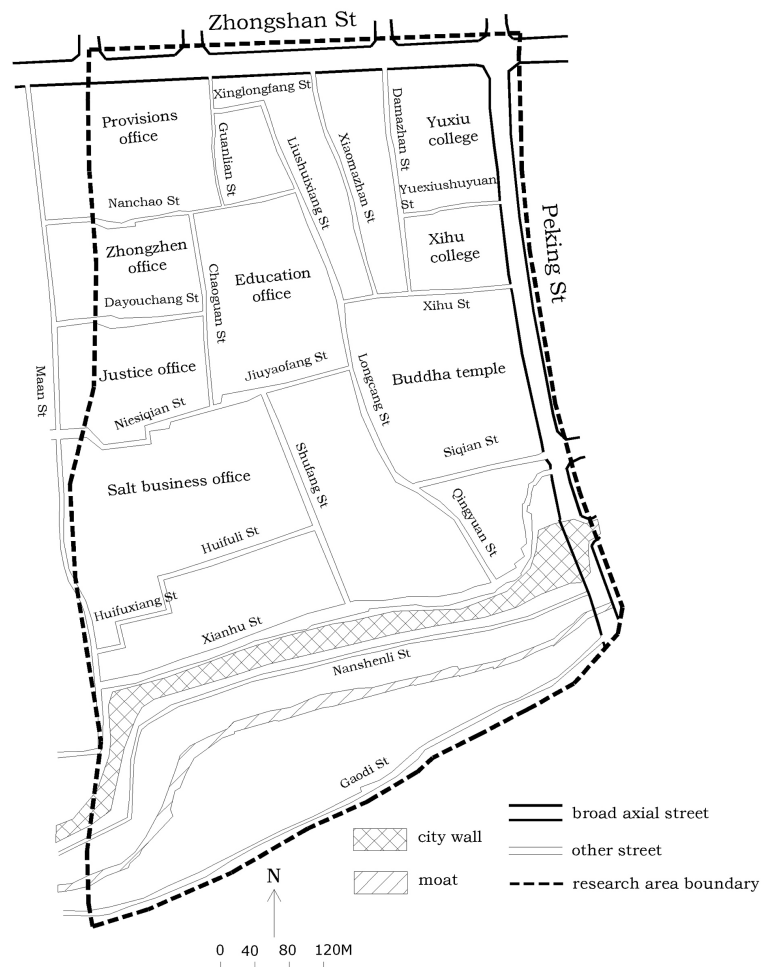


Figure 2. Streets and street blocks occupied by government in the late-Qing dynasty. Based on a map of 1907, surveyed by the German surveyor, F. Schnock.

1935. The resulting series of maps entitled *Guangzhou minguo jingjie tu* (*Map of land divisions and boundaries in Guangzhou in the period of the Republic of China*), shows streets and plots at the scale of 1:600 or 1:500 (Gu *et al.*, 2008, p. 99). These plans offer important clues for inferring the layout of the city before the Qing dynasty.

The ground plan is the morphological component most resistant to change (Conzen, 1960, p. 7), and the streets of the research area (Figure 2) shown in Schnock's map of 1907 have a history long pre-dating the Qing dynasty. They were mostly narrow and influenced strongly by topography (Figure 3).

The street system of the research area was

divided into two parts by a stretch of city wall running east to west, constructed in 1071, in the Song dynasty (Zeng, 1991, pp. 287-90, 440). The area north of the wall has a 'T' shaped street system. It was developed gradually on the plateau, which contained several lakes and was dissected by streams. The area south of the wall was marshland. It was dominated by Gaodi Street, which ran east-west parallel to the city wall.

Two broad streets, Peking Street running north-south and Zhongshan Street running east-west, are generally straight. They meet at right angles, immediately south of the administrative office of the Province of Guangdong. This arrangement roughly con-

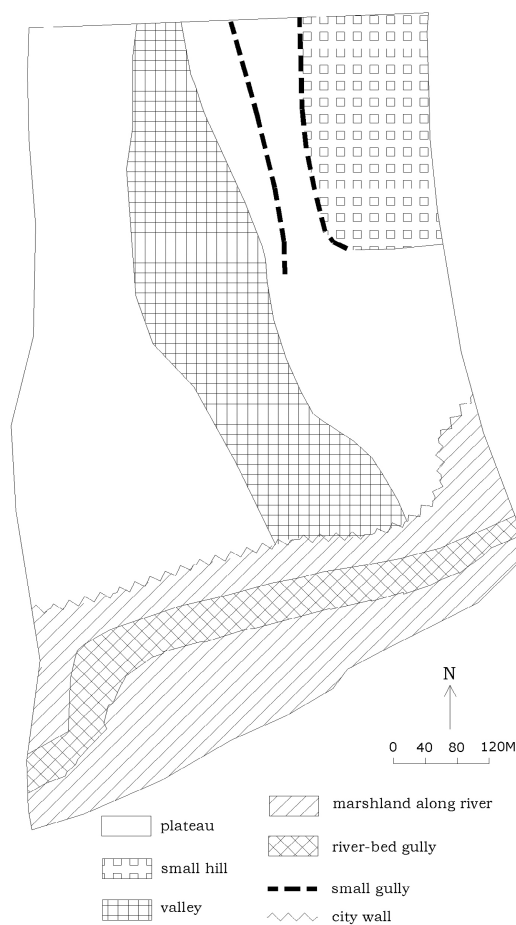


Figure 3. Topography of the research area.

forms to the planning principles of national and regional capital cities described in *Kaogongji* (the Artificer's Record), probably prepared between 206 BC and 220 AD (He, 1996, pp. 204-9). Such axial streets were made wider to underline the supremacy of the emperor and his officials in the feudal hierarchy. The only other wide streets within the walled city were those leading directly to the city gates (Figure 4).

Plot types and their geographical distribution are part of the 'objectivation of the spirit of society', to use an expression favoured by Conzen (1966, p. 59). The plots in the feudal period could generally be divided into four types: very large governmental plots, large residential plots, narrow elongated commercial plots, and medium-sized plots used for a variety of purposes (Figure 5). Plot type and its distribution was influenced by

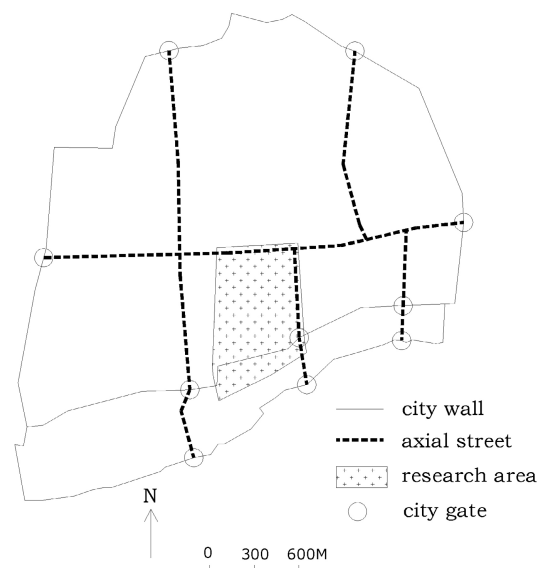


Figure 4. Axial streets leading to city gates in the late-Qing dynasty. Based on a map of 1907, surveyed by F. Schnock.



Figure 5. Plot types in the feudal period.

various factors, such as size and shape of street block, and position relative to the city wall.

Normally an office for senior government

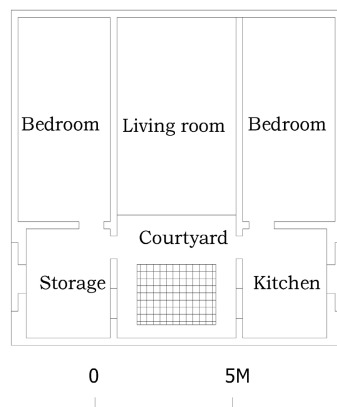


Figure 6. Floor plan of a single-storey *sanjian lianglang* house. Based on Gu *et al.*, 2008, p. 100.

officials occupied a whole street block. It generally had three characteristics demonstrating its occupiers' superior social position: first, it should be very large (the size of the smallest plot of this type in the study area was 1.9 ha); secondly, its shape should be as close as possible to a rectangle, with the street on the southern side, where the main entrance would normally be located, being as straight as possible; thirdly, its site should be within the walled area, and at least one street block north of the southern wall of the city, so as to avoid the noisy, crowded commercial area along the Pearl River, and clear of any inauspicious shading from the sun that would be created by the city wall.

Large residential plots were mainly located on either side of the city wall, forming a fringe belt (Conzen, 1960, pp. 58-9). Such plots were either near or within the commercial area along the river bank. Those in the intramural, between the government area and the commercial area, were mainly occupied by senior government officers. Those in the extramural were mainly occupied by wealthy merchants.

Narrow elongated commercial plots with lengths of 40 m or even more and widths of 3-5 m were arranged tightly on both sides of Gaudi Street. Those with economically valuable street or river frontages were

gradually subdivided by landowners into smaller plots for sale or rent.

A great many plots in the research area fell into the medium-size category, which contained such land uses as residential, non-governmental institution, and government office of low rank. They occurred widely both inside and outside the city wall.

Courtyards were prevalent. The common dwelling type was probably the *sanjian lianglang* house, with a small courtyard of about 3 by 4 m (Figure 6). Though no longer extant within central Guangzhou, it still survives in sizeable numbers in numerous surrounding towns and villages (Gu *et al.*, 2008, p. 99).

Recovery from war: the early Qing dynasty (c. 1644 - c. 1757)

After a period of disruptive wars in the later-Ming dynasty, in the early-Qing dynasty economic stability returned (Ye, 2003, p. 359). Based on *Guangzhou minguo jingjie tu*, the large-scale plan surveyed between 1926 and 1930 (Compiling Committee for Guangzhou Gazetteer, 1995, p. 129), it can be inferred that two types of significant plot changes took place in this period: subdivisions of the very large governmental plots, and subdivisions of medium-sized residential plots.

Though there was growth in bureaucracy (Guo, 1987, p. 59) and urban population (Qiao, 1990, pp. 45, 48), which in China usually both went with economic restoration after wars (Du, 2010, p. 44), alterations to the very large governmental plots were limited to comparatively small areas bordering streets. Change was heavily constrained by both the local authority and central government. It mainly took place along side and back streets as, according to *fengshui*, development along the southern sides of street blocks, where the main entrances were located, would harm the dignity of the senior government office. A stretch of frontage on the eastern side street was cut out of the plot of the Office of Provisions and subdivided into medium-sized plots (Figure 7), perhaps by privileged

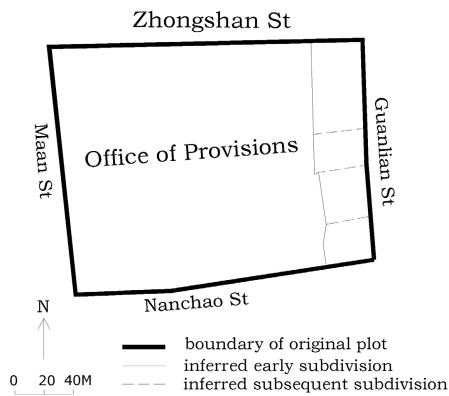


Figure 7. Subdivisions of the very large plot of the Office of Provisions. Based on a plan of 1930 housed in Guangzhou urban development archives.

officials transforming public land into private properties (Changye, 1931, p. 93).

As was common with sites relinquished from government control, particularly former central government sites (Changye, 1931, p. 258), medium-sized plots, especially if residential, were far more subject to change than the very large governmental plots. In the course of time some plots underwent a number of subdivisions. However, unlike in the small-scale encroachments on very large governmental plots, the plots deriving from the subdivision of medium-sized plots were of similar sizes (Figure 8) as, according to traditional custom in China, family heirs, mainly male descendants, generally acquired equal portions of land (Changye, 1931, p. 122).

The climax of the feudal economy: from the One-Port-Foreign-Trade policy to the Opium War (c. 1757 - c. 1842)

In 1757 Guangzhou was designated by the Qing dynasty as the sole port in China to trade with the outside world. Known as the One-Port-Foreign-Trade policy, the monopoly in external trade provided a major boost to the city's economy.

High-value street frontage land was sub-

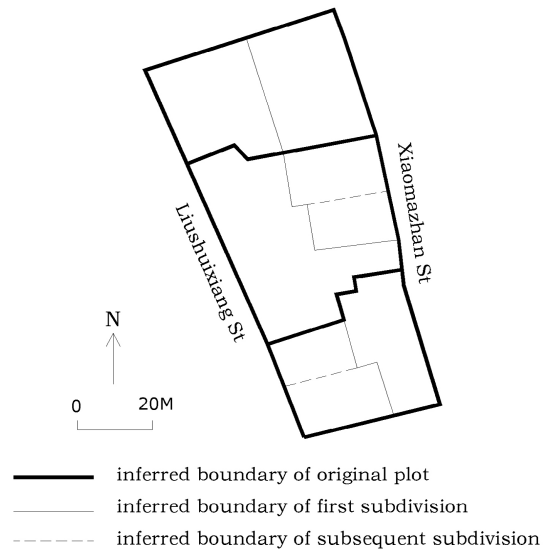


Figure 8. Subdivisions of a medium-sized residential plot. Based on a plan of 1930 housed in Guangzhou urban development archives.

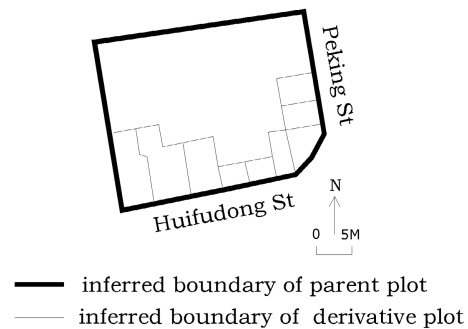


Figure 9. Derivative plots carved from a medium-sized parent plot. Based on a plan of 1930 housed in Guangzhou urban development archives.

divided, often creating relatively inaccessible backland (Figure 9). Later, as the climax of the feudal economy was reached, prior to the advent of industrialization, land was divided into elongated plots. These plots were commonly somewhat less than 5 m wide, and in many cases as much as 50 m or more in length. A few such plots survive at the east end of what was Shufang Street (Figure 10), which was widened in 1932 and renamed Jiaoyu Street.

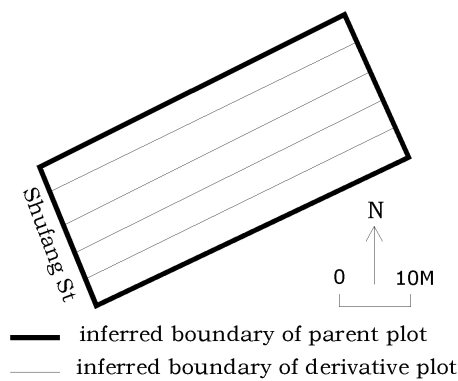


Figure 10. Standard elongated derivative plots carved from a medium-sized parent plot. Based on a plan of 1930 housed in Guangzhou urban development archives.

A new type of plot division is commonly accompanied by a new building type. The advent of the *zhutongwu* (the 'bamboo tube' house) (Gu *et al.*, 2008, p. 101), in which the building block-plan covered almost the entire narrow plot, reflected the arrival of an era of land shortage in Guangzhou, as an increasing number of people moved into the urban area. To save land, the traditional open spacious courtyard (Figure 6) was replaced by a small lightwell (Figure 11). The low level of construction technology continued to act as a limitation on building height.

The transition from pre-modern to early modern: from the Opium War to the end of the Qing dynasty (c. 1842 - c. 1912)

The Opium War in 1842 ended the Qing dynasty's monopoly of trade with the outside world. As one of the five treaty ports opened to foreign traders, Guangzhou experienced major Western influence.

As land values increased still further in the late-Qing dynasty, another form of development occurred. Internal alleys were opened by landowners, along which they created squat transverse plots for sale (Figure 12). This new development marked the transition of Guangzhou from a traditional feudal commercial city

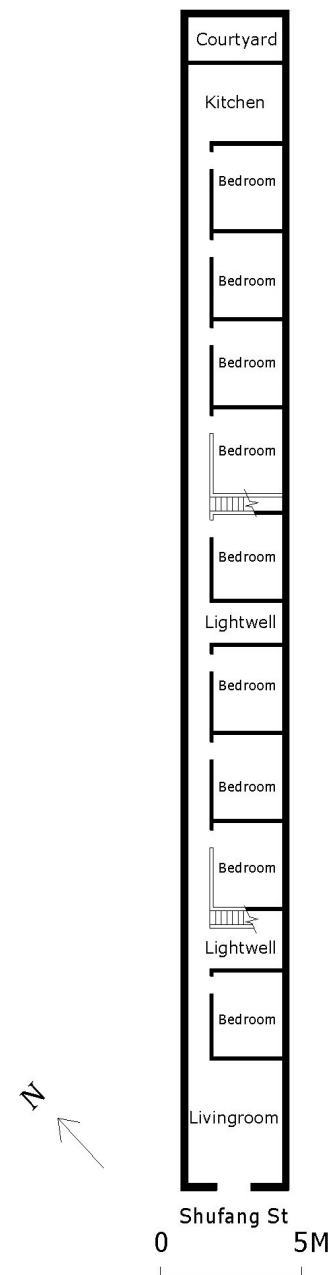


Figure 11. Ground-floor plan of a *zhutongwu* house in Guangzhou. Based on author's field survey.

to an early-modern capitalist city. A new affluent social class came into being, among whom compradors, employees in foreign-owned factories, industrialists and Chinese returning from overseas were prominent (Jiang and Fang, 2008, pp. 453-500; Sun, 1957, pp. 234-42). In contrast to the rich traditional

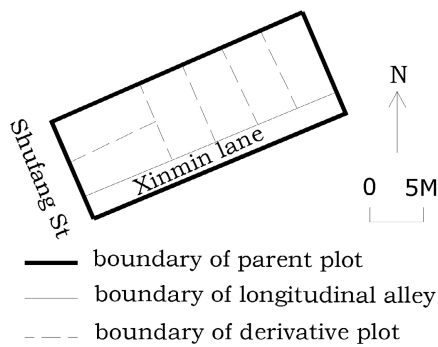


Figure 12. Derivative plots and alley formed within medium-sized parent plot. Based on a plan of 1930 housed in Guangzhou urban development archives.

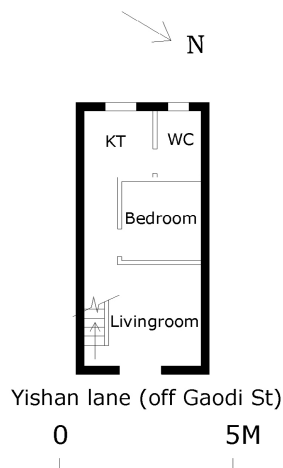


Figure 13. Floor plan of a single-storey zhutongwu house. Based on author's field survey.

feudal families, in which a husband generally had more than one wife, these Westernized families were mostly nuclear families with a husband and one wife at their core. These small families favoured terrace-like *zhutongwus* (Figure 13). These were about one *jian* (about 4 m) in width. A significant minority of houses were *mingziwus* (Figure 14) which were about two *jians* in width (Gu *et al.*, 2008, p. 99).

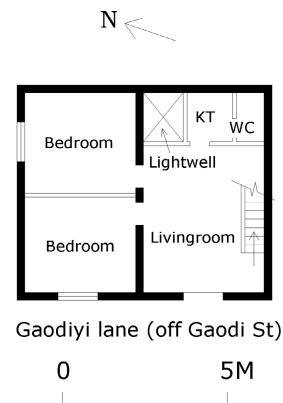


Figure 14. Floor plan of a single-storey *mingziwu* house. Based on author's field survey.

The early-modern period: Republic of China (c. 1912 - c. 1949)

During the period of the Republic of China the principal morphological changes were to streets and very large governmental plots. Central government influence was greatly weakened at this time, and the local authority of Guangzhou gained greater autonomy. It was transformed from a feudal military institution controlled rigidly and directly by central government to a modern Westernized municipal authority with prime responsibility for its local society (Xin, 2010, pp. 4, 32).

In 1919 the municipal authority raised large sums of money to ease the movement of motor traffic in the old street system within the walled area. Streets were widened and breakthrough streets were created (Chen, 2008, p. 42; Qian, 1939, p. 776; Xin, 2010, pp. 25-8). There were associated changes in plot boundaries.

Constrained by morphological frames formed slowly in the long feudal period, the new broad streets tend to be curving rather than straight. Changes to the street pattern reflected varying degrees of difficulty in acquiring land. Often the least complicated approach was to widen existing streets. Another method was to use land owned by the local authority, notably the very large govern-

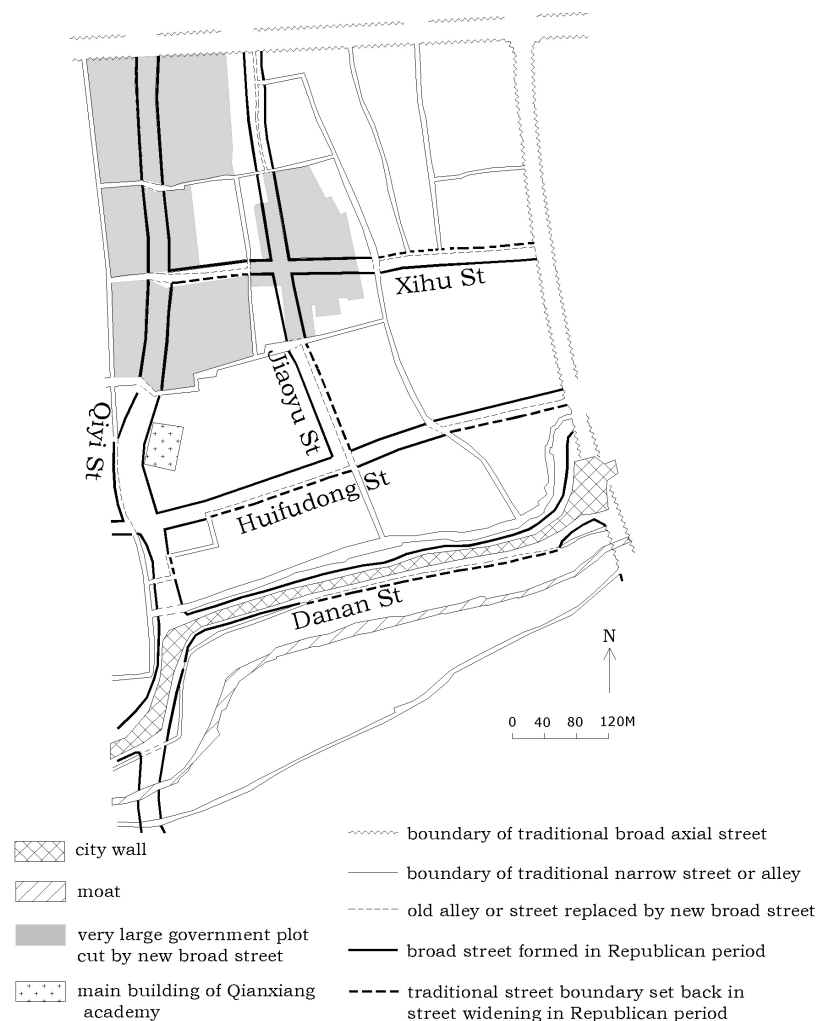


Figure 15. Widening of streets during the Republican period.

mental plots or land previously occupied by the city wall. Sometimes private land was requisitioned for the creation of new streets. In the Republican period rights of private property were highly respected by the government, and the views of landlords sometimes influenced the routes taken by new streets. Qiyi Street, for example, had to make a detour to avoid Qianxiang Academy as its collective landlords refused to sacrifice their splendid main building to allow the construction of a breakthrough street (Zi, 2012) (Figure 15).

The opening of broad streets gave rise to further changes of land use. Taking advantage of enhanced suitability for transport, commerce extended along both sides of these new

streets from traditional commercial streets, such as Gaodi Street and Peking Street (Figure 16). Although the extent of commercial land at this time increased greatly, the sizes of individual plots continued to be small, developing in ways quite similar to those of the feudal period. Only narrow bands of land on each side of the new broad streets were transformed into commercial use. The large internal areas of street blocks remained in non-commercial use, such as by government institutions and dwellings.

As private property was strictly protected by law, to raise large sums of funding for city development, the local government had to sell to developers large tracts of government land taken over from the Qing dynasty (Guang-

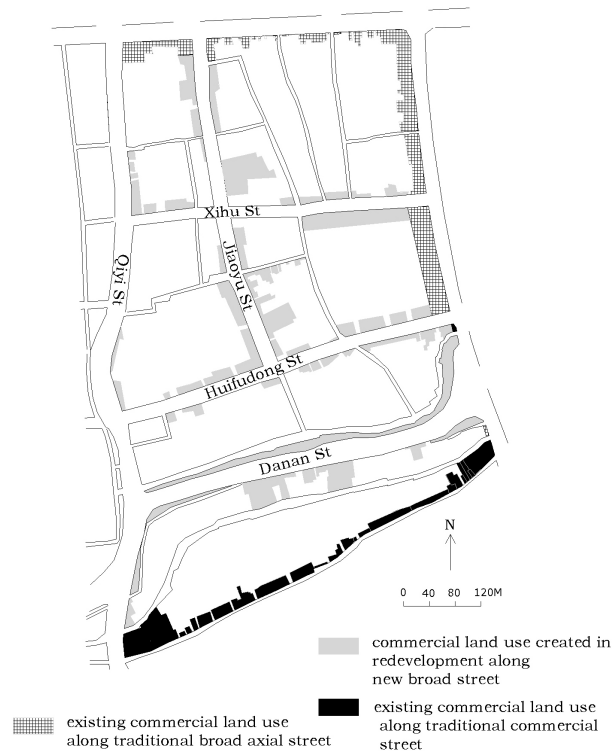


Figure 16. Commercial extension along new broad street.

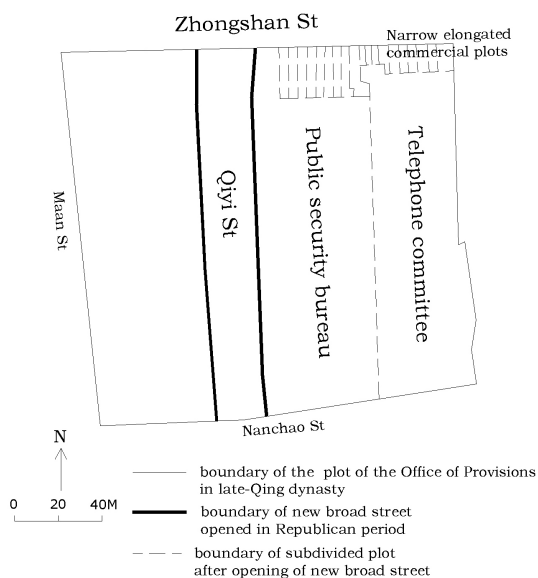


Figure 17. Alterations to the plot of the Office of Provisions in the Republican period. Based on a plan of 1930 housed in Guangzhou urban development archives.

zhou Municipal Administration Office, 1921, p. 35). The size of governmental plots was much smaller than in the feudal period. For example, the area occupied by two important government institutions (the public security bureau and the telephone committee) was only about two-thirds of that occupied by the office of provisions in the late-Qing dynasty (Figure 17). The area of the educational office was reduced to a small fraction of what it was in the late-Qing dynasty (Figure 18).

In this period financial companies began to fund large-scale residential redevelopment in the traditional city. Large parts of governmental plots were transformed into highly profitable superior residential areas. Aiming to meet the taste of the lucrative market of the newly rich, these districts commonly lay particular stress on high quality public space. Thus their outdoor environment was greatly improved relative to that of the medium-sized plot redevelopments in the late-Qing dynasty. An example of this kind of redevelopment was that on the previous very large governmental

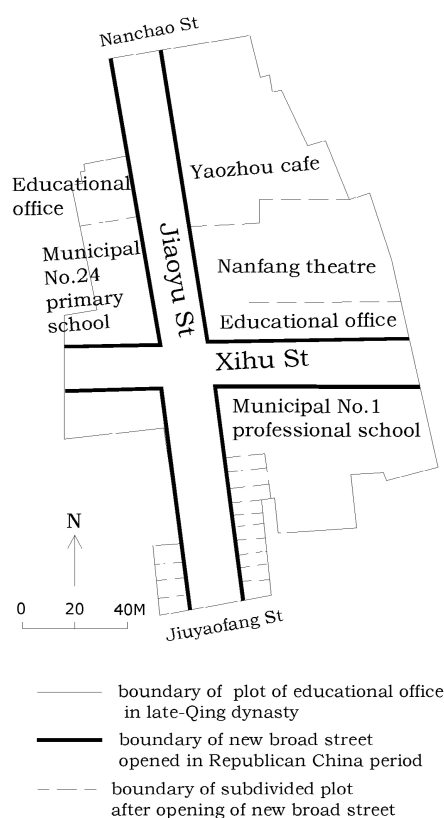


Figure 18. Alterations to the educational office plot in the Republican period. Based on a plan of 1948 housed in Guangzhou Property Survey Institute.

plot of the salt business office (Figure 19). In this case both sides of the roads were planted with trees, forming an enjoyable public outdoor space. Furthermore, a corridor approximately 1 m wide was placed between back-to-back plots to facilitate natural ventilation of the flats on either side.

The communist transformation

After 1949 a great many organizations with a long history were identified by the communist government as outdated or morally wrong and needing transformation. Borrowing heavily from the approach adopted in the Soviet Union, many organizations were dismantled or superseded by new ones, notably *danweis*

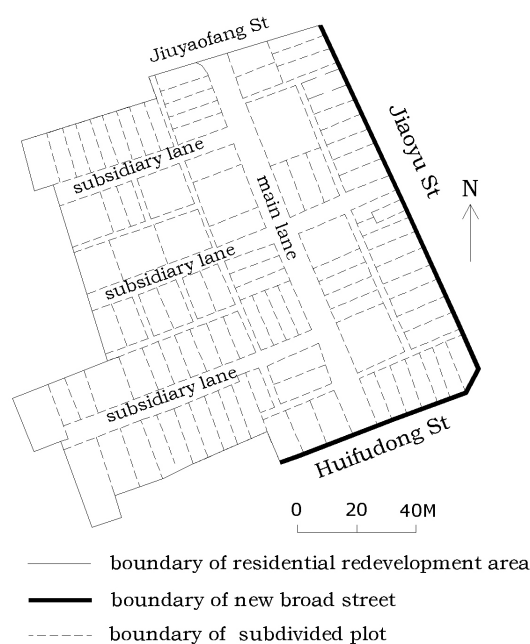


Figure 19. Residential redevelopment of a government plot. Based on a plan of 1948 housed in Guangzhou Property Survey Institute.

which were directly or indirectly controlled by government.

In this period morphological changes can generally be divided into two types: the demise of large residential plots and the formation of large *danwei* plots. The former were exemplified in the requisition of Xudi, a large residential plot occupied by a previously powerful clan named Xu. Xudi was wholly taken over by the government and subsequently dismantled into small pieces, of which only a tiny fraction remained to meet the primary living requirements of the previous landlord, Clan Xu. The majority of the plot was distributed to various *danweis*, including the local education authority, a primary school and a workshop for the repair of vehicles. Comparison of Figures 20 and 21 indicates the great destruction of the traditional arrangement of buildings that took place between 1949 and 1960.

The large-scale occupation of private land by the Public Security Bureau (PSB) is indicative of the more extreme developments.

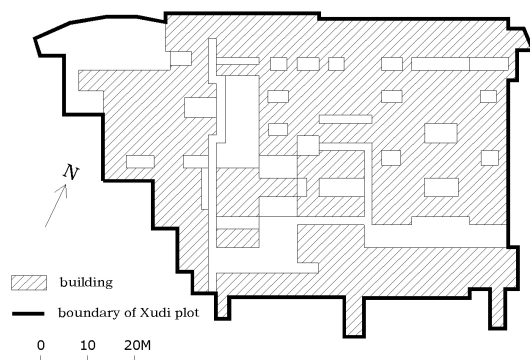


Figure 20. Xudi plot before 1949. Based on an imprecise map drawn according to the memory of a descendant of Clan Xu (Lu, 2004, p. 8).

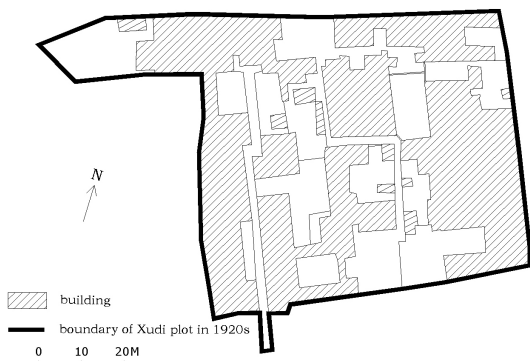


Figure 21. Xudi plot in 1960. Based on a plan of 1930 housed in Guangzhou urban development archives, and an unpublished plan of 1960 housed in Guangzhou Urban Planning and Design Survey Research Institute.

In the Republican period the plot size of the PSB, a senior governmental office, had shrunk to about 1 ha. After 1949 its size increased to 2.6 ha, returning to or even exceeding the scale of the very large governmental plots of the feudal period. In this enlargement a great many of the contiguous plots lying south of Nanchao Street were expropriated as illegal properties obtained by exploitative methods of the bourgeoisie (Figure 22). In this massive amalgamation process a considerable length of Nanchao Street was absorbed into the plot of the PSB. Since the street system is the most

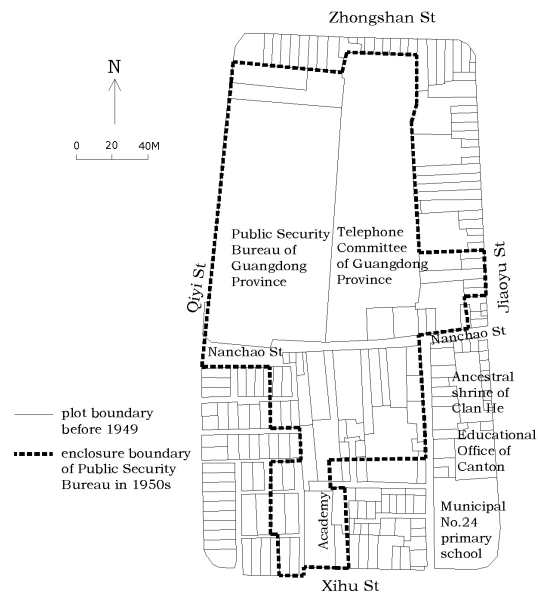


Figure 22. Enclosure of land for the Public Security Bureau in the 1950s. Based on unpublished plans of 1948, 1959 and 1989, housed in Guangzhou Property Survey Institute.

resistant element of the town plan (Conzen, 1960, p. 7), the change taking place on Nanchao Street is indicative of the tremendous upheaval occurring in China after 1949, especially in respect of landownership.

The early stage of transition to a market-driven economy (c. 1979 - c. 1992)

After 1978, with the implementation of the policy of reform and opening to the outside world, the economic state of the government gradually improved. Governmental control was gradually loosened. Urban land, however, was still strictly controlled by government. Morphological change at this time was mainly expressed in two types of new *danwei* buildings.

One type was a multi-storey apartment, mostly erected by *danweis* with a large number of staff, most of whom were workers or functionaries of low rank. As urban land could not be freely conveyed between *danweis*, the construction activity of each

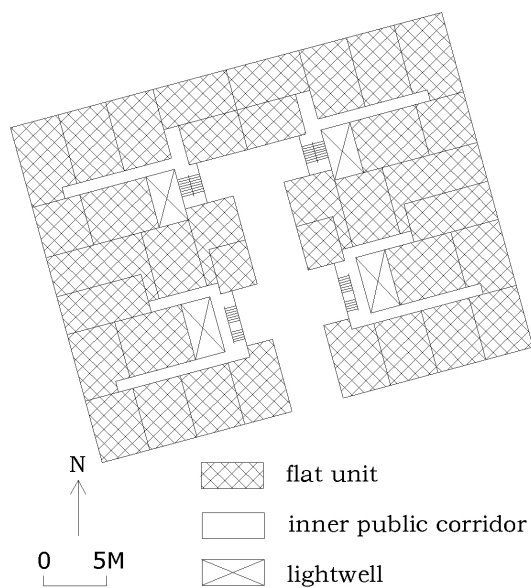


Figure 23. Floor plan of a typical multi-storey apartment building constructed in the 1980s.
Based on a field survey by the author.

danwei was confined to its original plot boundary that had been confirmed by the government in the early days after 1949. The height of this kind of *danwei* building sometimes reached 9 storeys, considerably exceeding a comfortable human climbing limit by staircase. Each storey was usually divided into several units, each containing more than 6 tiny flats, but equipped with only one staircase. As each flat was very small and the length of wall facing outside was extremely limited, its kitchen had to be placed along the inner public corridor, with consequent problems of ventilation (Figure 23).

The other type was a strip-like apartment building normally built by a *danwei* with ample land. For example, in the 1970s a municipal construction co-operative demolished its large tract of warehouses in the city centre, and built several strip-like apartment buildings for its staff. Living conditions were much better than in the multi-storey blocks erected in the same period. The buildings were only 6 storeys in height, with a staircase for each storey serving two relatively spacious flats which were well ventilated (Figure 24).

Judged by these two dominant types, since

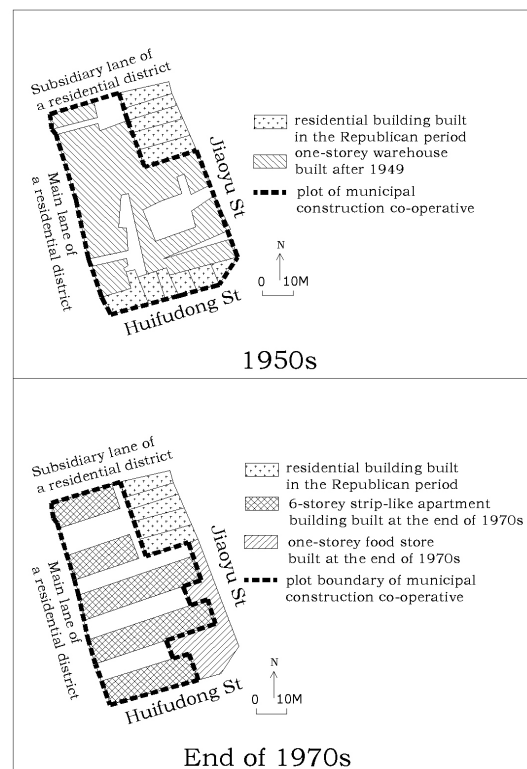


Figure 24. Strip-like apartment building built at the end of the 1970s. Based on unpublished plans of 1959, housed in Guangzhou Property Survey Institute, and 1980 housed in Guangzhou Urban Planning and Design Survey Research Institute, and field survey by the author.

trading in land was forbidden, for most *danweis* with sufficient government financial support, the environmental quality of the building was significantly dependent on plot size.

Present-day rapid development (c. 1993 -)

After nearly 15 years of continuous and effective reform in the economic sphere, in 1993 the Chinese economy entered into a period of rapid development. The reforms went deeply into the sphere of property ownership. Since these economic reforms, increasing differences in the financial state of *danweis* are beginning to find their expression in urban redevelopment.

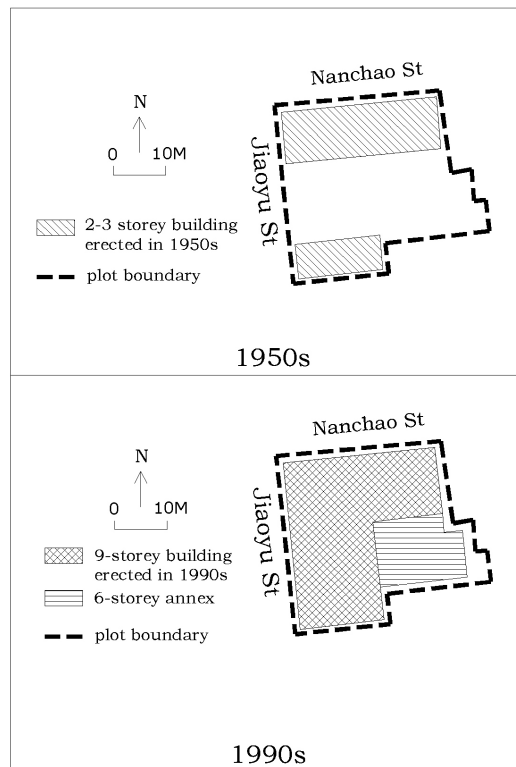


Figure 25. Redevelopment by the Labour and Social Security Bureau of its own plot in the 1990s. Based on unpublished plans of 1980 and 2000, housed in Guangzhou Urban Planning and Design Survey Research Institute, and field survey by the author.

had issued a series of laws and regulations relating to the distinction between on the one hand the vesting of all land ownership in the state and on the other the right of individuals and bodies to transfer and sell the rights of usage of such land. However, it was not until an economic boom in the mid-1990s that a significant land market developed. It was at this time that developers superseded the *danweis* as the most important agents in reshaping the urban landscape. Three morphological types of redevelopment could now be recognized.

The first type was redevelopment by a *danwei* of its own plot. With real estate business developing rapidly, the income of the local authority also increased. Funds became available to *danweis*, especially those of

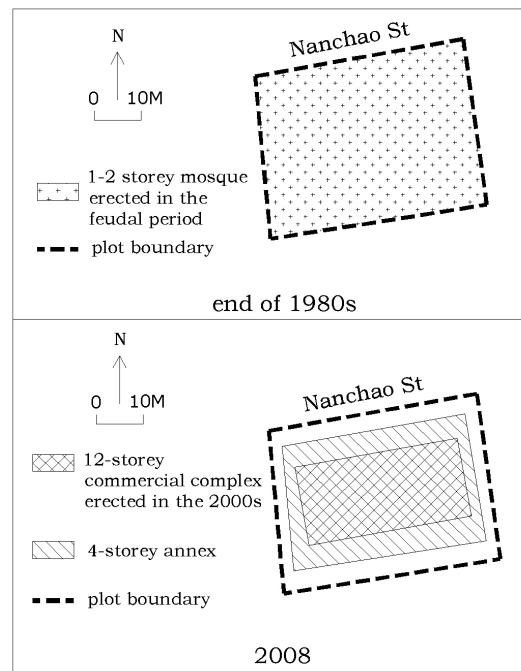


Figure 26. Commercial redevelopment of a *danwei* plot. Based on unpublished plans of 1989, housed in Guangzhou Property Survey Institute, and 2006 housed in Guangzhou Urban Planning Bureau, and field survey by the author.

government departments, to improve their working conditions. For example, the Labour and Social Security Bureau (LSSB) of Guangdong province demolished its 2-3 storey office buildings constructed in the 1950s, and replaced them with a 9-storey one and a 6-storey annex that together occupied the whole plot (Figure 25). Similarly to other governmental *danwei* redevelopments, the scale of the new building was principally determined by the status of the *danwei* in the bureaucratic hierarchy and its total number of staff, rather than the exigencies of the real estate market. The LSSB had no desire to release the full economic potential of its plot, although a much higher skyscraper could have been constructed.

The second type of morphological change was the replacement of *danwei* plots for commercial purposes. The rejuvenation of a minority of *danweis*, mostly departments of

government, was at the expense of the decline or collapse of the majority of others. As the government gradually abolished the subsidy to small- and medium-sized *danweis*, mostly state-owned enterprises born in the process of a comprehensive national campaign promoted by the government from the early 1950s, a large majority of them fell into financial difficulties, even bankruptcy. Much of their land was acquired by small- and medium-sized real estate companies with strong local connections. At first land acquisition tended to be straightforward. But acquiring funding for the actual redevelopment was often more difficult. For example, in 1994 the Islamic Electric Equipment Factory went bankrupt, and its plot lying south of Danan Street was acquired by Guangzhou Huamei Construction Co-operative for commercial redevelopment. The existing traditional building, a mosque dating from the late-Qing dynasty, was cleared. However, as a result of the financial difficulties of a developer that was not operating as a purely commercial enterprise, the redevelopment progressed very slowly, taking nearly 15 years (Figure 26).

The third type of morphological change was undertaken on a purely commercial basis. Here a key role was played by newly established real estate companies adopting methods introduced from the West. These developers relied largely on capitalist principles rather than on local networking.

Large-scale commercial redevelopment has to a major extent been related to economic reform. The loosening of government control on capital flow since the early 1990s has meant that huge investments have been made in the lucrative but high risk real-estate market. Very large street blocks, sometimes more than one street block, whose plots and building forms had evolved slowly over the course of the feudal period have been occupied by a single redevelopment. For example, in the 1990s, Guangzhou Guangming Real Estate Co-operative enclosed for commercial redevelopment the street block of 0.6 ha surrounded by Xihu Street, Longcang Street, Huifudong Street and Huixinxi Street. All buildings and alleys inside it were cleared and

replaced by a 9-storey commercial complex fully covering the street block. Previous low-value awkward 'back' sites in the interior of the street block were absorbed into a single commercial development fronting four streets (Figure 27).

The geographical structure of the town plan

In the preceding analysis of an area in central Guangzhou the process of morphological change has been explored as a series of morphological periods from remote feudal times to the present day. The characteristics of components of the present town plan have been explored with reference to their periods and mode of development and redevelopment. On this basis, key morphogenetic features can be brought together in a map of plan units. Figure 28 shows the distribution of these plan units in 2011 (hereafter, numbers in parentheses refer to the numbered sites in this Figure).

The present street network consists of both broad streets and narrow streets. The former were breakthrough streets or widenings of traditional streets during the Republican period. The partial transformation of the 'T' shaped street network into a more comprehensive pattern of intersecting cross streets to improve vehicular movement was constrained by the old morphological frame. The shapes and sizes of street blocks are variable. Many of the traditional streets remain as alleys. Though the city wall has been demolished and replaced by a broad street (Danan Street), its influence as a fixation line has not completely ceased. Most notably, two consequent streets, Xianhu Street to the north and Gaodi Street to the south (Figure 2), have been little affected by the drive to expedite traffic movement.

Though affected by redevelopments, the plot pattern still reflects aspects of the morphological frame of the feudal period. The area north of Huifudong Street, previously mainly influenced by political forces, is still dominated by very large plots, although these are not all occupied by government depart-

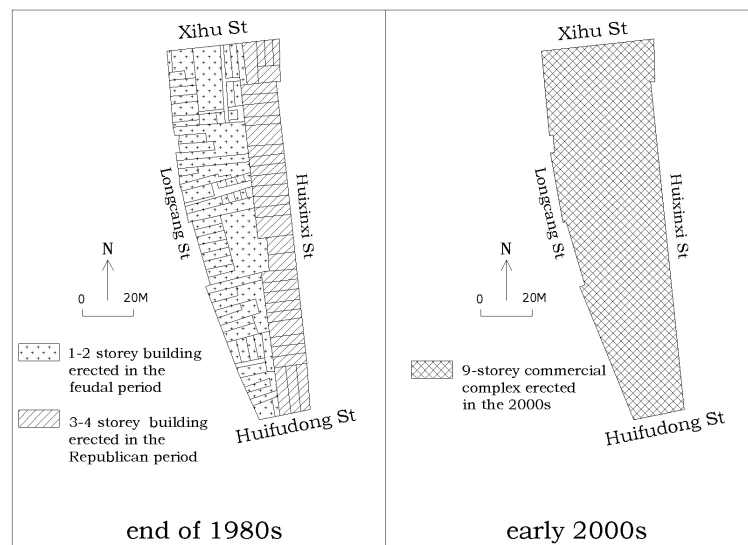


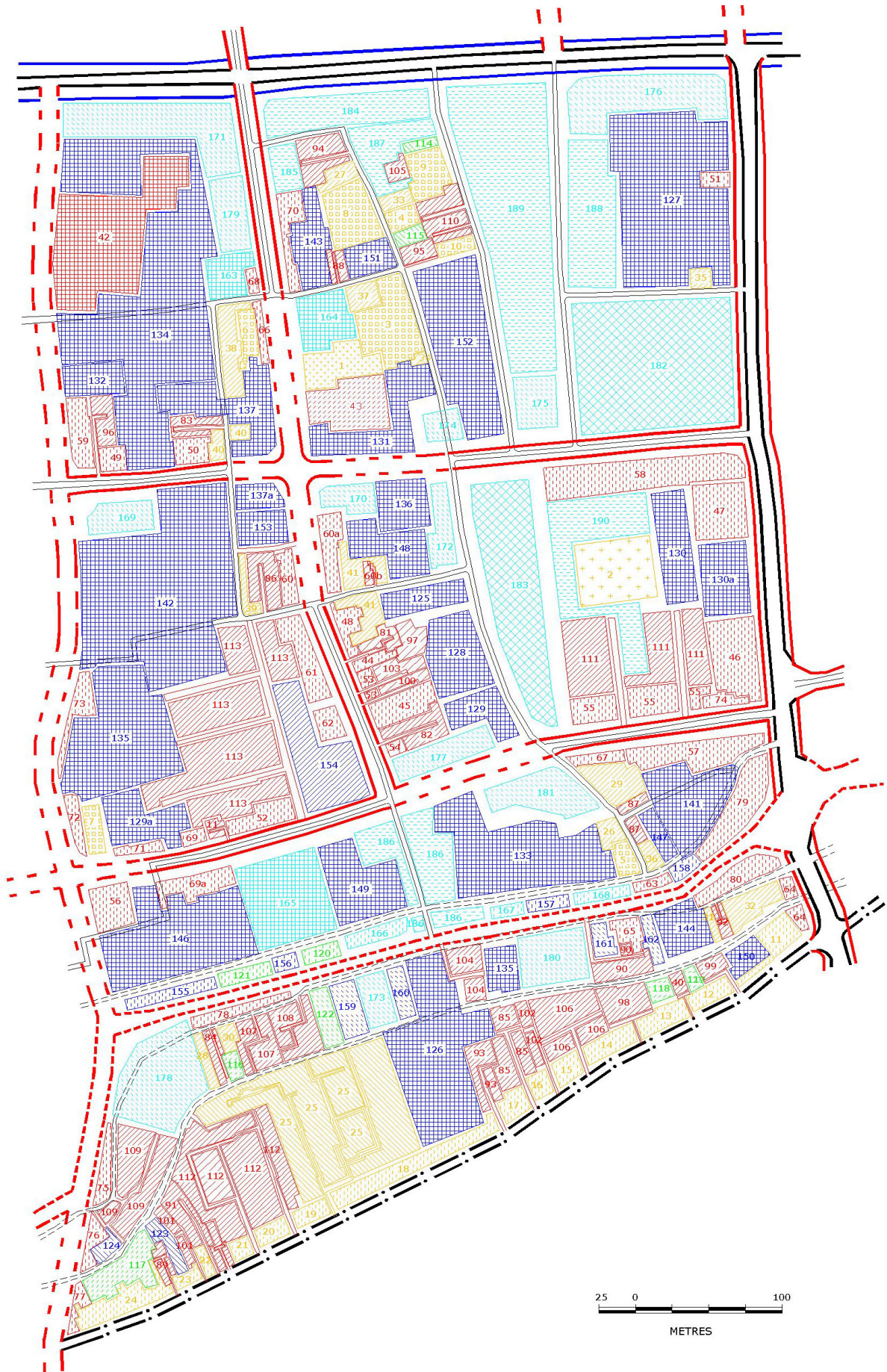
Figure 27. Large-scale enclosure for commercial redevelopment in the 2000s. Based on an unpublished plan of 2000 housed in Guangzhou Urban Planning and Design Survey Research Institute, and field survey by the author.

ments. The further widening of Zhongshan Street as an expressway, with a metro line constructed beneath it, was associated with commercial redevelopment, which extended southward from Zhongshan Street and westward from Peking Street. The latter has been gradually commercialized since the end of the Qing dynasty, resulting in two types of very large plots occupying a whole traditional street block: one consisting of an upmarket shopping centre (182, 183), while the other is urban fallow (189). These recent commercial redevelopments have greatly reduced the number and size of plots. Remnants of large *danwei* plots (134, 142, 135) and plots created in the Republican period (42, 133) now survive mainly in the western part of the research area, along the relatively stagnating Qiyi Street. The very large governmental plots formed in the feudal period have undergone most change. There are only two partial survivals. One is the remainder of the garden of a government office (1), previously in the back courtyard of the plot of the Education Office and later dissected by Xihu Street and Jiaoyu Street (Figures 2 and 16). This is now occupied by a cafe. The other is the remnants

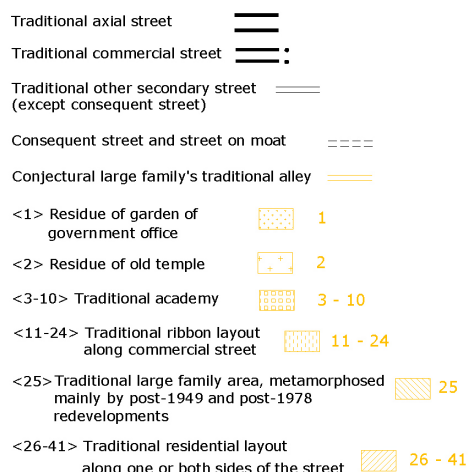
of the site of the Buddhist temple (2), most of which was taken over by the local authority for residential development.

The traditional intramural area between Huifudong Street and Danan Street, is still characterized by medium-sized plan units, mainly resulting from redevelopments since 1978. They consist of *danwei* plots created in redevelopments after 1978 (133, 146, 149) and after 1993 (184), and a commercial complex (181) and urban fallow (186). Reflecting partly the constraints of the morphological frame of medium-sized plots formed in the feudal period and partly the gradual weakening of commercial forces with distance from the thriving commercial belt along the metro line, recent commercial redevelopments were considerably reduced in size relative to those in the previous political core.

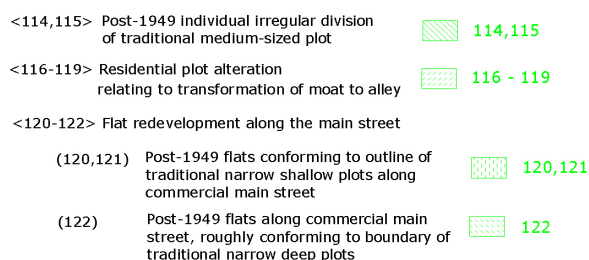
Redevelopments in the area between Danan Street and Gaodi Street were heavily restricted by the generally close-grained plot pattern in the traditional proximal extramural, which had developed into a high-density residential and commercial district in the feudal period. After 1949, as major *danweis* generally preferred to occupy large plots in the traditional political



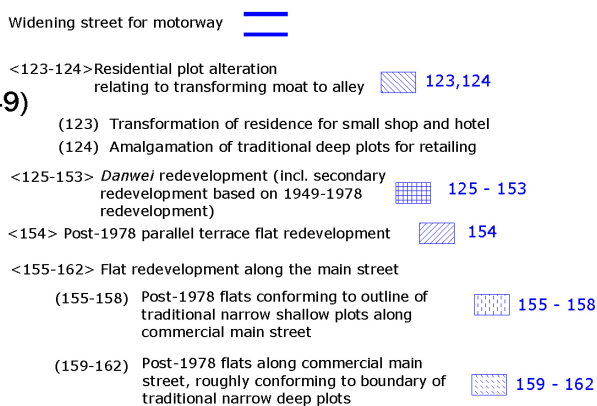
(I) <1-41> Feudal period (pre-1912) (III) <114-185> Modern period (1950 -)



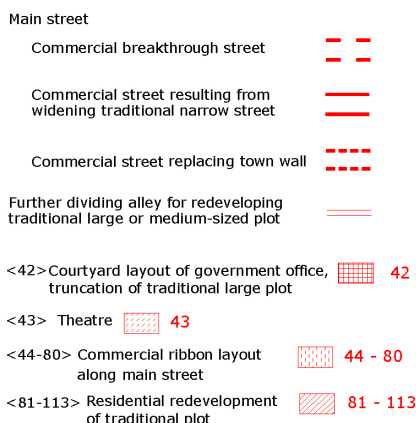
(i) <114-122> Socialism modernization redevelopment (1950 - 1978)



(ii) <123-162> Transition to market-directed modernization (Early period of Reform and Open Policy, 1979 - 1992)



(II) <42-113> Early-modern period (1912 - 1949)



(iii) <163-185> Rapid development period (1993 - 2009)

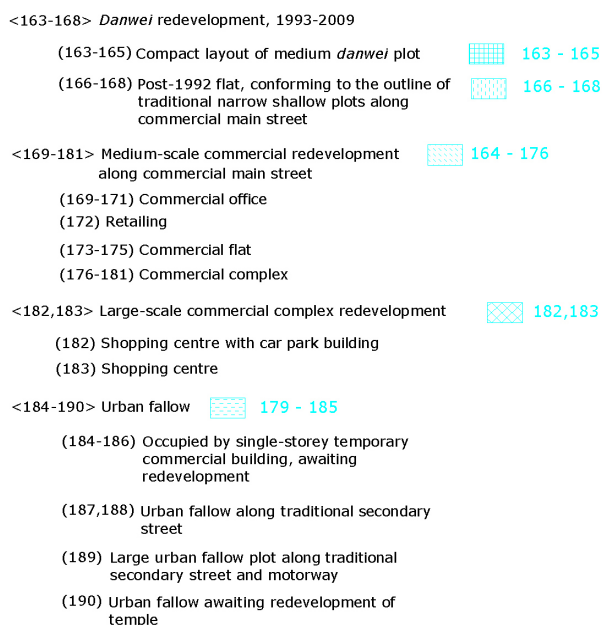


Figure 28. Plan units in part of central Guangzhou, 2011.

core in the north, those of minor importance occupied by, for example, small factories, minor education offices and primary schools, were located by the government in the noisy, overcrowded area in the south. In the early-1950s traditional large residential plots were subdivided by these *danweis* into small plots (25). With the exception of a military *danwei* (126), it was generally difficult for the majority of these numerous ordinary *danweis* to obtain sufficient government funding for large-scale redevelopments to improve their living and office conditions. Most small subdivided areas formed before 1949 survive, though their buildings are mostly in a state of dilapidation (64-5, 106-9, 112). The traditional ribbon layout along Gaodi Street survived comparatively well (11-25), as upper-class commerce tended to shift to broad streets to the north, especially near the metro line. This traditional, narrow commercial street, in a somewhat peripheral location, has declined into a wholesale centre for cheap underwear. Current limited commercial redevelopments (173, 178, 180) tend to be scattered along the commercially busier and broader Danan Street.

Conclusion

This paper confirms the effectiveness of the Conzenian method of plan analysis in an area in Guangzhou, China with a markedly different culture from that of the Western countries in which it has previously been largely employed. Light has been shed on the historical significance and processes of development of an important facet of urban form: an aspect largely neglected hitherto by researchers in China, despite its relevance to future decisions in urban planning, especially in management of the townscape.

Having traced the plan transformation of a small urban core area through a series of morphological periods, we can now interpret the existing town plan as a geographical outcome.

It is widely acknowledged among Conzenian researchers that the street is the most enduring element in an urban ground

plan. The street system in the surveyed area has remained little changed for several thousand years since its formation began in a distant feudal period. The only significant changes to the street network have been in the past 100 years to meet the requirements of motor vehicle traffic and enhance the commercial value of land. Breakthrough streets were created and traditional narrow alleys were widened in urban renewal campaigns launched by the government. Even so, much of the network of streets and the alignments of most individual streets reflect a long history, including topographical influences from earliest times.

The plots in contrast have undergone a great deal of change, including intermittently over the last few centuries and with increasing frequency closer to the present. Based on detailed plan analysis, the plot transformation process in the surveyed area can be divided into four major phases.

First, at least between the early-Qing dynasty and the late-twentieth century, the plots, especially the very large governmental ones, underwent a great deal of subdivision. In the feudal period, government land was subdivided rather slowly. At first, shallow frontage plots were cut from the government plots. Later further subdivision occurred to produce medium- or small-scale plots mainly for residential use. After 1911, with the collapse of the Qing dynasty, local government acquired considerable autonomy. Influenced by developments in cities in Europe and America, large-scale redevelopment occurred in the city centre. In this process, new broad, breakthrough streets were created. Most of the large government plots were taken over by the municipal authority and subdivided. Most were sold to developers for commercial, especially residential, redevelopment. Thus much of the land previously controlled by government was privatized, leaving under direct government control just sufficient land for basic office requirements.

Secondly, between 1949 and 1978, two contrasting transformative processes took place simultaneously. One was subdivision of the large traditional plots, such as those

belonging to temples and rich families. As religious groups and wealthy clans were identified as anti-socialist organizations by the new proletarian authority, their property was expropriated and subdivided into medium- or small-sized plots. These were distributed to the various *danweis* – the basic social and economic units established and controlled by the communist regime. The other transformative process was the large-scale amalgamation of plots by powerful *danweis*. With the abolition of private property, large tracts of land comprised mainly of small private plots were amalgamated to form very large government plots. In scale these far exceeded even those of the feudal period, and occasionally included adjacent streets.

Thirdly, in the early reform period from 1978 to the end of the 1980s, as the economy gradually recovered from the 10 years of the Cultural Revolution between 1966 and 1976, morphological change was mainly limited to the construction of new apartment buildings within *danwei* plots, but the disposition of city-centre plots and streets generally remained little changed.

Fourthly, since the 1990s, plot amalgamation for commercial redevelopment has occurred. This has mainly been commercially driven but implemented by political means, rather similar to those used in the *danwei* amalgamations that took place between 1949 and 1978. Developers can only acquire or purchase land from the government for commercial redevelopment, since only for such redevelopment do they have authority to requisition the land of *danweis* or private residents.

Building coverage in the city centre has been increasing since the early-Qing dynasty. For much of the time that increase was slow. Between the late-Qing dynasty and 1949, as the number of narrow, shallow plots multiplied rapidly, building coverages approaching 100 per cent became normal – even higher than those recorded by Conzen as having been achieved in the core of the British city of Newcastle upon Tyne in the course of the nineteenth century (Conzen, 1962, p. 407). Largely reliant on natural ventilation and

lighting, and with inadequate sanitation, such high coverages were inevitably accompanied by poor living standards. The economic and technological transformations in the 1990s that brought massive changes to plot patterns, even more drastically changed building densities as building coverages close to 100 per cent were accompanied by multi-storey building on a large scale.

The application of the Conzenian historico-geographical method of analysis in Guangzhou, far from its European homeland, has contributed to a more systematic understanding of a major aspect of Chinese urban form. The relationship with underlying social, political and economic processes is of course fundamental, as is the need to connect with the other two key aspects of urban form investigated by Conzen – the building fabric and land utilization. While the general conclusions drawn here, for example in relation to morphological periods, are likely to have wide applicability within China, the urban morphological diversity within that huge country is great, and studies of this type are only just beginning in that part of the world. They are relevant not only to the urban historical geography of China but to cross-cultural studies and the provision of a sound basis for planning.

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