

Research Article

Morphology and Spatial Dynamics of Urban Villages in Guangzhou's CBD

John Zacharias,¹ Yue Hu,² and Quan Le Huang³

¹ College of Architecture and Landscape, Peking University, Beijing 100080, China

² Department of Geography, Planning and Environment, Concordia University, Montreal, QC, Canada H3G 1M8

³ Architecture Design and Research Institute, South China University of Technology, Guangzhou 510641, China

Correspondence should be addressed to John Zacharias; john.zacharias@concordia.ca and Yue Hu; 42tihu@gmail.com

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Studies on the urban village (*chengzhongcun*) over the past ten years have focussed on legalistic and structural aspects, as well as the social outcomes of village-led redevelopment. Studies on the morphology of villages, their spatial and economic linkage with the city, and their internal spatial dynamics are, in comparison, limited in number and scope. This study of village space in the new central area of Guangzhou focusses on the spatial relationships between village space and the surrounding city—the exchange of people and goods, the movement system in relation to commercial activity, and the relationship between the pattern of building and movement networks—as a primer for new approaches to physical renewal. Primary field data, interviews, and archival research support the analysis of Shipai village, in particular. It was found that Shipai plays a significant role in transport and economy at the district and central city level. The internal movement system functions to connect surrounding areas while supporting a commercial and services system of local and district-level significance. The built form of the village is also self-generated by location and internal rule making. The physical and activity patterns of the self-rebuilt village exhibit the characteristics of emergent spontaneous order.

1. Introduction

The regeneration of urban village space by the villagers themselves from the mid-1990s until today within south Chinese cities especially has attracted attention by academics, policy makers, and the media. The rapid build-up accompanied a substantial population increase, a transformed local economy, and the extreme densification of inhabited village space. The new residents were and remain with rural resident status, as is the case for most of the city's immigrant population in the case of Guangzhou. Build-up of the traditional, inhabited space that accompanied this population increase then produced a geographical and social divide in the city, with the great majority of village populations possessing rural status, while the majority of the surrounding population officially urban residents. The relationship between the village organizations and the government, particularly in the context of the continued regeneration of urban space in southern cities, has also attracted much attention. The legalistic framework has in particular been the object of study,

although little has changed formally. There is a small number of documented cases of government-led redevelopment, but no postoccupancy studies seem to be available. There is the literature on the building form and system of building, but not on the morphology of the built form of the village as a whole. There is now an abundance of socioeconomic data on villages, but without spatial dimension at the village level. This literature is given more detail in the following section, Morphology of the urban village in the literature, where the case for more indepth morphological analysis is made.

In Guangzhou, Tianhe district was carved out of the plains east of the city in 1985 for the city's future development. The plans that were drawn up to mark this space with city-scale institutions and infrastructure covered different territories and also had somewhat different intentions over time. For example, the 1984 plan for Tianhe included sports facilities for the 6th National Games in 1987 and a role as centre for science, technique, and education. The city as a whole was planned as polycentric with Tianhe in particular serving a specialized civic role. In this plan, inhabited village

spaces were excluded by the project's circuitous perimeter (Figure 1). Although village agricultural lands were expropriated, about 8% of these lands were subsequently returned to the villages to support their economic transition away from agriculture. The plan also made a start on a north-south formal spatial axis as the centrepiece of the development, also the first of its kind in Guangzhou. By 1993, Guangzhou was thinking to establish a Central Business District, launching an international competition and eventually passing the necessary revisions to the Master Plan (2001). While the 1980s plan proposed a relatively uniform grid of small blocks and little public space, blocks were doubled or tripled in area to an average of about 30 hectares to encourage multiple uses in large, integrated projects. The outcome for the villages in this plan remained ambiguous, although the inhabited villages were nearly all contained within the planned blocks. Of 402 parcels of land, 123 were designated village lands while 180 were destined to be marketed to developers. Spatial intentions now included a monumental extension to the north-south axis and signature open spaces and structures lining the axis. The current plan (2010) for an expanded CBD, also known as Zhujiang New Town, includes residential and institutional space to the east of the business and institutional core (Figure 1) [1]. The plan now makes clear that village renewal is a priority, while also stating that the renewal programme remains tentative and exploratory. Nevertheless, the policy stance of the local government in favour of physical renewal is clear and is explicitly related in city documents to the new globalising roles proposed for the city as a whole. Guangzhou now emphasises not only the preeminent cultural and administrative role of Guangzhou in south China, but also the global reach of its business and cultural heart in Tianhe district.

In keeping with this new effort and to have its first visible results coincide with the 2010 Asian Games, Guangzhou proposed to begin with the complete renewal of Liede village. Liede lay immediately east of the proposed civic additions to the north-south axis—the Canton Tower (2010), Opera (2010), Library (2011), and Children's Palace (2003)—making this village replacement project of the highest priority. Successful negotiations with the village and a state-owned development company led to swift completion by 2010. In 2013 the government was careful to qualify the Liede achievement as a unique response to unique conditions. With government ambitions facing fiscal challenges and local resistance, little further visible progress on the village replacement programme can be observed in 2013. Although the broad outlines of a future Zhujiang New Town are policy, the details of form and to some extent function remain to be defined for broad swaths of this major eastward extension of Guangzhou. It seems an opportune moment to devote missing attention to the existing forms and dynamic systems that make up the spatial relationships between village space and the larger city. In the rapid eastward development of the city, there has not yet been much attention paid to the changing social and economic geography of the region. Such detailed study of how the city works now might offer clues to the renewal of village space and the elaboration of the urban plan for the new central area as a whole.

Following this analysis of the research conducted thus far on south China urban villages, the present effort is an investigation into the dynamics of exchange between city and village in the first instance and a study of the internal patterns of movement, commerce, and building in the second. Specifically, what role does inhabited village space play in the public transport system and by extension in the economy of the central city? What is the structure of movement within the inhabited village space on one hand and its connection to the surrounding area on the other? How does this movement structure relate to the distribution and types of businesses and services within village space? Is the building system related to these movement systems or is it an independent system? These questions are addressed through a detailed examination of the economy and space of Shipai village in Tianhe district.

2. Methodology

Several methods were employed in order to provide answers to the above questions during field studies in May through June 2010 and during November 2011. The linkage between village and public transport was established with an intercept survey of Bus Rapid Transit (BRT) users and by observing and recording trips from public transport to local destinations. The maps of movement types and volumes were developed from an original cordon survey on the major street system of the village. Pedestrians, bicycles, and trolleys were counted separately as volume flows at midmorning and midafternoon on successive weekdays and weekend days over two weeks in 2010. The mean values of these counts are reported here. All-day counts of nonmotorised movement at select locations were also conducted to try to understand the temporal variations in the flow of people and nonmotorised vehicles through village streets. All shops and services were mapped to a Geographical Information System (ArcGIS), along with the volume counts and the observed detailed itineraries from the transport stations. For information on the economic linkage of village with city, the village administrative offices provided information from the archives. Semistructured interviews with current and past village leaders provided other details on the local economy. The building information was supplied by the Guangzhou Planning Bureau. All the above data were analysed in the following way.

The movement linkages between the transport nodes near Shipai village and the rest of central Guangzhou were obtained by linking boarding at Gangding station, at the edge of the village, with the distribution of destinations in central Guangzhou. Similarly, the flow of passengers from bus stations elsewhere in Guangzhou with Gangding station as the destination was also analysed. By tracking the exiting passengers ($n = 145$), with specific intention of drawing out those with destinations inside the village proper, we gain some insight into the significance of the linkage between village and the city transport system. We hypothesised a strong relationship between the internal movement of the village and the movement of people, goods, and vehicles in the planned space outside the village. If there is a strong

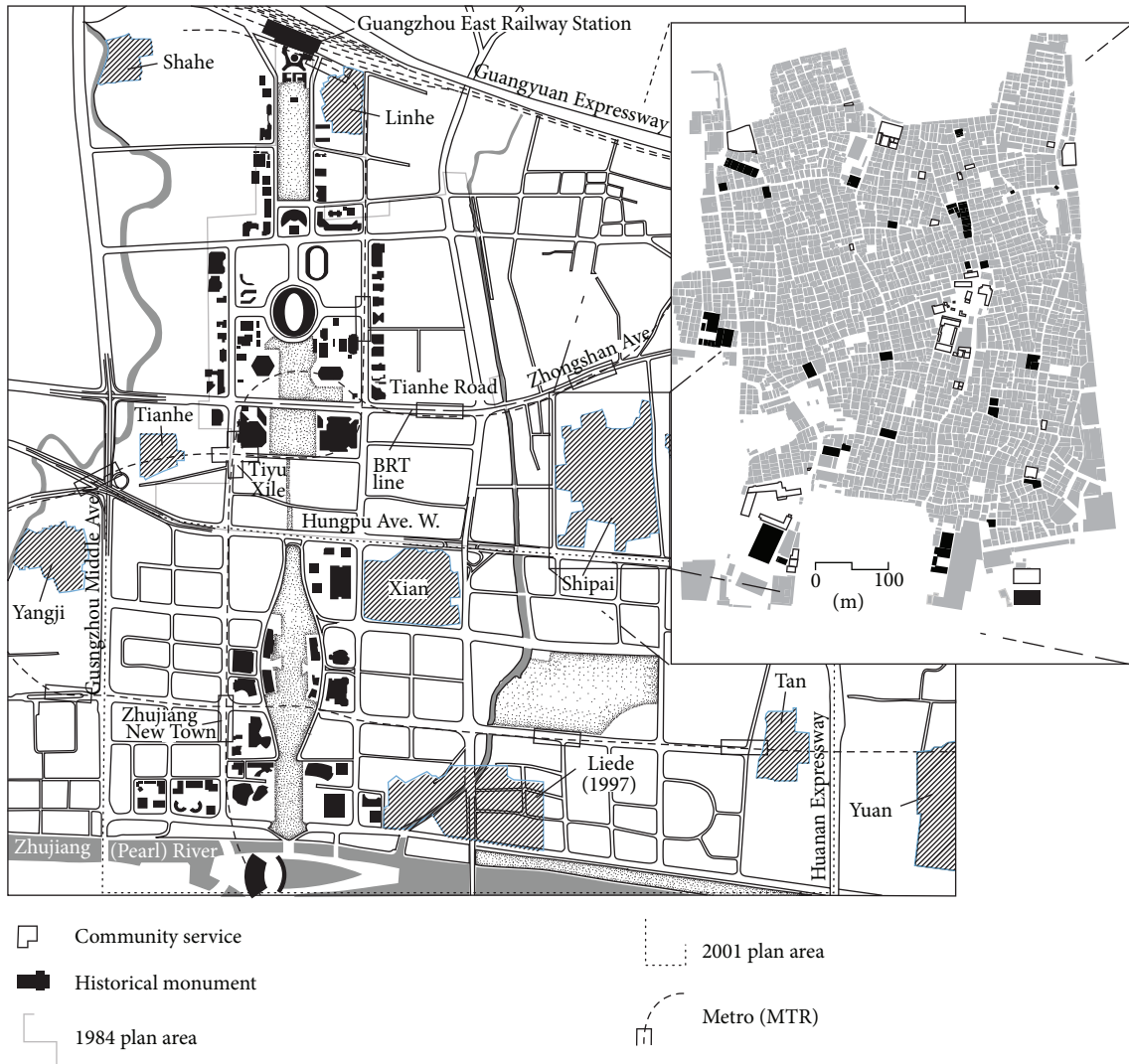


FIGURE 1: Building footprints associated with the central space projects, and a themed figure-ground enlargement of Shipai village.

linkage between the inside and the outside of the village, then the shortest distance pathways between major destinations will be chosen, with everything else being equal. We identify all the shortest routes between gates to the village using the GIS. These path segments are examined for their pedestrian volume and level of commercial activity, compared with all other pathway segments within the village. The extent to which the internal street system as a movement carrier is related to the outside environment is examined using correlation analysis. It was also expected that the amount and type of commercial activity would be strongly related to pedestrian flow level, following a long history of experience elsewhere. To determine to what extent this was true for the internal space of the village, correlations between pedestrian volume-flow and the intensity of public-oriented commercial activity were calculated.

It has been suggested in the literature that building density is randomly distributed—a product of opportunity, means, and initiative rather than of any systematic process.

We test whether the generated building volumes are a random assignment and secondarily whether they bear any relation to the activity structure. If these analyses fail to support the hypothesised relationships, then it appears increasingly likely that the building system is also a system with its own internal dynamic. Overall, the analysis supports the development of understanding village space as autogenerated, with internal procedural rules and with its own imperatives for development.

3. The Morphology of the Urban Village in the Literature

In the 2000 decade, the international literature on urban villages has expanded along several lines, commensurate with the increasingly central role the villages play in urban development in south China. The village-initiated rebuilding of their living habitat, a minor periurban phenomenon in the

early 1990s, soon constituted a major part of all rebuilding in Guangzhou, Shenzhen, and other southern cities. Today the rebuilt villages constitute about 20% of the urbanised territory of Guangzhou while housing more than one-third of the population [2, 3]. The literature has concentrated on three main issues with regard to this rapid build-up: the legalistic aspects of the rural-urban divide; social and economic disparities between village and surrounding city; and physical and morphological aspects of the self-built village environment.

The village is seen as an outcome of government-village relations, defined in law and by local practices [4, 5]. This legal framework permitted the villages to rebuild their inhabited space, although most villages in central locations built more than what was strictly permitted by law. Cities turned their attention to village lands in pursuit of development opportunities within the built-up city in the last half of the 2000 decade, prompting investigations into the process by which the lands end up in government hands [6–10]. The requisition process has also come under increasing criticism [11, 12]. There is widespread acceptance that the rebuilt village is in a transitional phase with consequent attention in the research to structural aspects of the production of village space [10]. A search for equitable handling of the exchange of property for money or other property is ongoing but has led in the few completed redevelopment cases to sharply increased densities [7]. At this writing, we are unaware of any postoccupancy studies of the redeveloped villages.

Permanent village residents try to cope with economic uncertainty by investing in their properties and starting businesses [13]. The persistence of the *hukou*, or urban residential permit, and the inapplicability of urban planning regulation to villages promoted the urban village as home to migrants. The great disparities in income, education, and household composition between urban residents and temporary or migrant residents have not only produced a deepening social divide, but have also been translated into a spatial divide [14, 15]. Some observers regard the concentration of inexpensive rental housing in villages as an advantage for cities, eliminating the possibility of self-built housing on the fringes while meeting an enormous need for housing for low-income service workers whose jobs are in the central city [2, 11, 12, 16]. The sustained presence of large numbers of rural migrants in such enclaves within the city has drawn attention to the sense of wellbeing of these populations, their social insertion in the city, their tenuous economic situation and their attitudes vis-à-vis the city [17–20]. To a considerable extent, the literature represents a search for equitable solutions for the second wave of government-led village redevelopment, and so is appropriately focussed on community development process.

How the villages rebuilt their living space has received attention [15, 21], but the specific mechanisms in the production of the form remain to be specified. Several observers have gone straight to the point concerning the apparent mismatch between ancestral spatial constraints and the building programme, resulting in environmental conditions judged to be below acceptable standards [22]. The evaluations of the urban fabric that appear in the literature focus on

qualities—daylighting, crowding, and perceived safety—with the suggestion that the physical form has a role in the generation of those qualities. The conditions of production—defined by law and convention—resulted in a highly uniform structure of buildings and rental spaces across the entire village inhabited space. While useful in the context of the city's economy [2], this form also has been criticised as setting the conditions for the concentration of social pathologies [23].

The villages mostly retain the layouts handed down from as early as the Ming Dynasty (1368–1644) when there was a population influx from the north. Villages gravitated to high ground or embraced rivers and channels but in general formed a network of villages, whose pattern is still seen in the contemporary landscape of central Guangzhou (Figure 1). Guangzhou's approach over the 1980s was to proceed conservatively, minimizing the urbanisation of rural lands and the deployment of government financial resources. Public infrastructure generally avoided the built-up village land, thus reducing the total compensation bill for the requisitioned village properties. The periurban landscape was already experiencing change in the 1980s, as state-owned companies and institutions acquired village lands for their own purposes [21], often with minimal intervention by local government. Village and geography guided the subsequent occupancies by state-owned institutions and eventually the city's urban plan. The elimination of the agricultural economy and the prospect of economic collapse prompted an administrative decision to return some lands to the villages in both Guangzhou and Shenzhen. That retroceded land, often already occupied with village-sponsored economic activity, was then rebuilt in partnership with private interests. The infrastructure provided by cities such as Guangzhou supported the building projects on the retroceded lands, building up the fringes of the village—in the case of Shipai, especially properties on the south side of Zhongshan Avenue.

The adaptation of the historic village plan to the demands of urban building has been investigated as a spatial phenomenon with an important temporal dimension [24, 25]. The self-rebuilt villages have quite uniform spatial characteristics, but densities vary from the urban periphery with plot ratios around 1, while centrally located villages in Shenzhen and Guangzhou rebuilt to as high as 2.7. Buildings seldom exceed 7 floors, with a mean value of about 4 in centrally located villages in Guangzhou. The village replacement schemes realised so far consist of 30-or-more storey slab blocks arranged around green space, built at ratios of 6.8 in the case of Yunong [26], 6.2 in Liede [27].

While there exist many qualitative accounts of this emerging urban village form, there is little objective documentation. In classical morphological terms [28], we know much about the morphogenesis of the village and have a general understanding of the morphological periods. On the other hand, we know little about the relationship between activities and the urban form, the special focus of the present research. To this end, the present paper represents an attempt to investigate how the strong, emergent patterns of movement and exchange relate to the internal layout of the village and to the village's geographical position.

4. Transport and Economic Linkage between Shipai and the City

Shipai is one of the most intensively developed of Guangzhou's original 139 villages, with a population of 55,000, of which about 15% are village residents (Table 1). The collective resources of the three clans composing 75% of the village population are substantial, deployed in projects on retroceded lands, and eventually on the inhabited village territory. The dominance of north-south movement within the village was reinforced with the opening of Zhongshan Avenue (1925), the first vital east-west link through the fertile valley bottom. In the local space of the village, the farm machinery roads that flanked Shipai, originally canals, were converted in 1995 to four-lane urban roads, a joint project between the village and the municipal government. These roads were quickly commercialised because they joined the two major east-west corridors immediately north and south of the village, while also connecting the preexisting streets in Shipai. Two metro stations on line 3 (2005) are located within or nearby the village. Both Zhongshan Avenue on the north and Huangpu Avenue East on the southern perimeter are important public transit corridors as well. Zhongshan Avenue accommodates one of the busiest BRT stations in the world with 53,924 passengers entering or exiting the station in our one full-day count. The BRT not only enables Shipai to act as a destination for urban transit users distributed widely over the central districts but also distributes Shipai's working population over the same area (Figure 2). The village is highly accessible from the public transport system and accounts for much of its patronage. The Gangding BRT station is laid out with the two major entry points coinciding with the two most important entrances to Shipai on its north side. In an observation study we conducted, it was observed that 42% of those exiting this BRT station ($n = 187$) proceeded directly to Shipai village, while the great majority of the remainder visited the commercial centres adjacent the village. In another one-day survey, there were 57 trolleys and 1071 porters carrying goods from village space to the BRT station platforms. There are many other transfers to the metro and to vans along Shipai East and West Roads. The total flow of nonmotorised wheeled traffic within the village totals nearly 2,000 per hour at the morning peak around 8 am, most of it directed toward Zhongshan Avenue on the north or Huangpu Avenue West on the south and is sustained at similar levels throughout the day, currently the highest nonmotorised vehicular flows in central Guangzhou (Figure 3).

The retroceded lands along Zhongshan Avenue house computer and electronics markets whose combined floor space exceeds 150,000 m², at some of the highest rental rates in Guangzhou. There are also four four-star hotels and a multiplex cinema. These village developments have been accompanied by external direct investments making the Shipai node, including the village, of the first order of importance in central Guangzhou. Shipai is home to about 8% of the district workforce of about 650,000 [29] where the village proper occupies half of one percent of the land area. Annual revenues from real estate under village ownership,

TABLE 1: Summary population and economic data on Shipai village.

Total population of Shipai village (2000)	51,100
Permanent village resident population (2000)	9,181
Land area of ancestral inhabited village	0.76 km ²
Number of buildings in inhabited village	3,656
Rental units	11,492
Mean height of buildings in storeys	5.06
Density (floor-area ratio) of inhabited village	4.97
Total floor space of inhabited village	3.2 m m ²
Number of street-level commercial outlets	1,228
Commercial services for the local population	766
Property-based revenues to Sanjun Group (2004)	45 m USD
Property-based revenues to Sanjun Group (2001)	24 m USD
Property revenue as % of total revenue (2001)	37.1
Average annual growth rate in income for Sanjun 1985–2001	19%
GDP Tianhe district (2010)	29.6 b USD
Service sector as % of GDP of village (2001)	64.8

Sources: Tianhe district (2010), National Economy and Social Development Statistics Bulletin, and Guangzhou Planning Bureau.

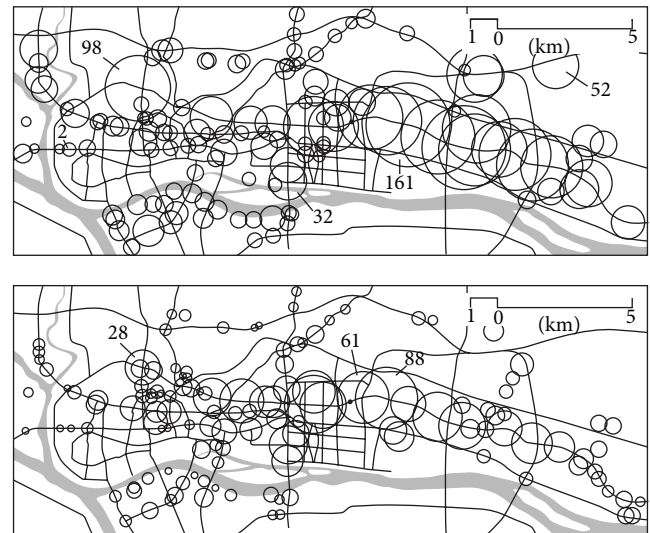


FIGURE 2: Top: BRT trip origins with destination at Gangding (Shipai), indicated by the black dot. Bottom: destinations of trips starting at Gangding. (Data courtesy the Institute of Transport Development Policy.)

within the village proper and on retroceded lands, were 45 m USD in 2004 [30]. In 2000, the comparable figure was 30.8 m USD [31] while dividends to shareholders exceeded 6 m USD in the same year. This makes the village lands some of the most productive in the whole city and have transformed the Sanjun holding company of the village into an important city-scale economic player.

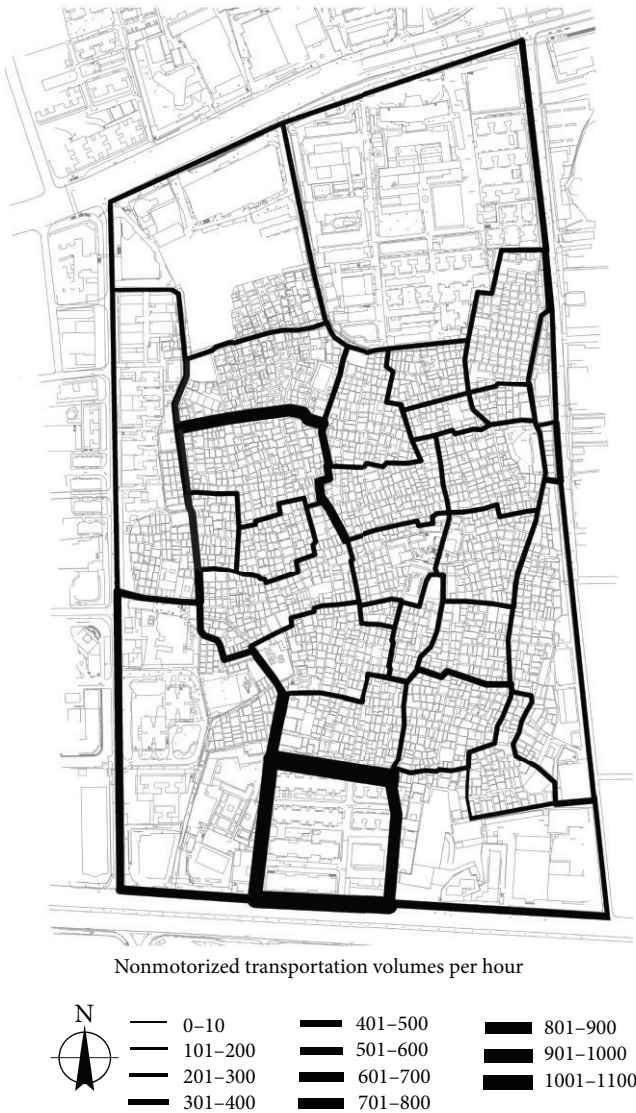


FIGURE 3: Mean afternoon peak volumes of nonmotorised vehicles including bicycles, tricycles, two-wheeled, and four-wheeled trolleys.

5. The Spatial and Functional Morphology of Shipai

The most significant pedestrian flow in Tianhe district is along Tianhe Road and its continuation to Zhongshan Avenue (Figure 1). The busiest segment of this corridor is immediately above Shipai village, in part because it is a public transport hub, in part because of the presence of the village and its activities. Shipai streets host the heaviest pedestrian flows in Tianhe district, which reached 3,000 persons per hour on some internal street segments in our field survey. Flows are distributed over the network (Figure 4), largely on the most efficient pathways between entrances. Of the 318 links between intersections on the walking network of the village—pathways greater than 80 cm wide—187 serve to link one or another pair of the 12 major entrances. Of these



FIGURE 4: Mean afternoon peak volumes of pedestrian flow in the late afternoon on weekdays for those streets with more than 500 persons/hour.

shortest pathways between entrances, 168 have pedestrian volumes exceeding 500 persons per hour. No segments that were not part of the efficient network had comparable pedestrian volumes. In other words, the distribution of pedestrian volumes describes the optimisation of linkage between inside and outside the village, using the existing pathway system.

The growth of street-level commerce in Shipai has shifted the value of the building from gross rentable area to ground floor space, as ground floors command rental rates three times those of upper floors. This has led commercial operators at the ground floor to open up their frontage to the street and redo the transitional space between street and shop. There were 1,228 commercial units in Shipai in 2010, of which 766 were services for the local population (Figure 5). Visual inspection also suggests a close relation between pedestrian



FIGURE 5: All ground-level shops, restaurants, warehouses, and community services.

volume and commercial character. To test that hypothesis, we correlated the shop data with pedestrian counts. The intensity of commercial activity, represented as the number of commercial units standardised by street length, correlated highly with pedestrian volume ($r = .78$; $n = 194$). The clustering of food and beverage outlets was also significantly related to pedestrian volume ($r = .63$). In other words, the intensity of commercial activity, the rental value of the space, and so the types of activity are all related to pedestrian volume, which, in turn, is related to the layout of the village streets and the surrounding streets.

Shipai village is built up at an overall density of 4.97 floor area ratio (FAR) on the inhabited village territory, with a mean building elevation of 5.06 storeys. Building height varies locally, strongly evoking the impact of local rules (Figure 6). To test the hypothesis that local factors determined the distribution of building heights in the village, we divided the village space into randomly assigned one-hectare squares. The average number of building footprints in one hectare is 94, with 20% ($\pm 3\%$, $P < .05$) at 7 floors or more. When the grid is reduced to 0.25 hectare, the proportion of such taller buildings remains at 20% ($\pm 2\%$, $P < .05$).



FIGURE 6: The heights of all buildings with average height at 5.06 storeys and total house footprint area at 281,607 m².

The same effect occurs with buildings of lower heights, such that the mix of heights in a local area is relatively uniform. More research would be needed to reveal the mechanisms of approval of such building practices, but it is clear that the process is locally based and has some form of internal control to distribute density. Movement and accessibility are unrelated to the distribution of building density.

The street layout (Figure 7) dates to before the start of the Qing Dynasty (1644), when the major streets were paved in stone setts. The original layout, designed to provide efficient access to village agricultural fields, especially to the west, north, and east, now provides access to the urban uses occupying those former fields. This historical fact goes a long way to explain why the historic layout is mostly, although not exclusively, the local network carrying most of the pedestrian traffic today. Overall, we observe a close relationship between urban activity and the layout of the village and region. Although without formalised rules, the physical and activity outcomes evoke the procedures and processes of spontaneous local development [32].



FIGURE 7: The street network of Shipai village, with streets greater than .8 m shown with thicker lines.

6. Discussion

Studies of urban village morphology and its relation with economic activity have renewed importance at this time. The substantial presence of the urban village in built-up parts of Guangzhou, Shenzhen, and other southern cities calls for new and innovative approaches to their renewal. The Guangzhou Master Plan 2010–2020 [1] devotes for the first time a lengthy section to the renewal of old city fabric and village transformations in particular. Eight villages are designated for “complete transformation” within or near that core area, namely, Liede, Xian, Shidong, Linhe, Shipai, Tangxia, Tangdong, and Xiaoxintang. “Complete transformation” is defined in Subsection 9.8.5 of the Master Plan as “completely transformed mainly by full demolition and re-build.” Policy pronouncements have been consistent with this direction since the passage of the Master Plan [33]. But the Master Plan also proposes a “trial” approach in a limited number of cases, given the inherent complexity of this almost unprecedented transformation [1].

The more cautious approach to the management of village space launched in 2010 was clearly inspired by the Liede experience, which was so widely publicised at the time as a resounding success for the process and the physical results. To avoid direct payment for the land out of public coffers,

the Urban Land and Housing Bureau reclassified the 11.4 hectares of rural, collectively owned village land to urban state-owned land [34], after guaranteeing replacement floor space amounting to about 300% of the original villager home footprints. The original village was built to FAR 2.7. Additional floor space acquired by villagers was then offered at a price set below cost. With the agreement of the villagers in place, the change from rural to urban status allowed the land to be leased on the market. Two real estate companies, KWG Property Holding Ltd and R&F Properties Ltd., reportedly paid 728 m USD based on a plan to develop at an exceptionally high density of 6.2 FAR [27]. Net residential densities elsewhere in central Guangzhou seldom exceed 3.0 FAR.

The city hesitates at the high cost of the approach, financed through the sale of density, and the way such transactions undermine the Master Plan. Party Secretary, Mayor, and senior bureaucrats have all publicly expressed this concern. Liede is in fact 24% higher in density than Shipai, the most densely built of Guangzhou’s self-built villages.

The attention given to a global role for Guangzhou in the 2000 decade led to plan changes to renew Tianhe district in its entirety. The larger plan area (Figure 1) now included high-end, high-density residential use in a swath parallel to the Pearl River. Visualisations show a landscape of towers set in green space and arranged in large blocks. Making the setting for the expected growth of knowledge-based activity has become central to the city’s efforts, in which the heterogeneity and territoriality of village environments do not seem to have a place. An objective comparison of the two urban fabrics remains to be carried out, but it is clear that there are major differences (Figure 1), but also a great deal of interaction between them. That interaction is clearly facilitated by a local, nonmotorised transportation system with its multiple connections between village and city being made possible in confined urban space.

The movement dynamics and spatial system of places like Shipai have significance at a theoretical level. The structures of village physical, social, and economic spaces, as we have tried to demonstrate in the present paper, are complex, stable, and rule based. Without central decision-making and with a large number of simultaneous decisions, similar outcomes are observed over village space. Self-regulating physical phenomena are always of interest since they reflect social processes.

7. Conclusion

This research set out to develop a better understanding of how the morphology of the urban village relates to the movement of people and goods, the spatial structure of its commercial and services system, and the built form. The urban village of Shipai in the centre of Guangzhou’s Tianhe district was selected for study, in part because it continues to adhere to the process of self-development. This village, among others in central Guangzhou, represents an extremely localised concentration of people, movement, and economic activity that is also highly connected to the larger district and city. In particular, it is seen that Gangding bus station, the busiest in Guangzhou, is the destination of half of alighting

passengers. The bus and metro systems are heavily used for transporting goods from Shipai village to other points in the city. The survey of passengers boarding buses at this station also revealed that their destinations are distributed throughout central Guangzhou. In other words, exchange and economy make Shipai village and the immediate space outside it a significant place in central Guangzhou.

The public transport system connects immediately with the internal, nonmotorised movement system of the village, which makes village space highly accessible from other areas of central Guangzhou, although consisting almost entirely of a confined and circuitous pathway network. The internal pathway system serves to connect the areas outside the village and to concentrate on commercial activity and movement within village space. Commerce is specialised in accordance with pedestrian flow levels. History and geography conspired to make villages such as Shipai central places of a particular kind, already highly connected to the city and continuing to evolve with it. The forms, networks, and land use distributions of the village constitute an integrated urban system that, whatever its faults or ultimate fate is, might hold some lessons for managing these places.

Conflict of Interests

The authors declare having no contractual arrangement of any kind with the companies or official organizations mentioned above. The authors are university-based researchers who designed and conducted the research according to their own plan and did not receive financial support from those organizations to conduct this research. Some of the data were collected with financial support of the nongovernmental organization, Institute of Transport Development Policy, to whom the authors express sincere thanks.

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