

Alley Network Renewal and the Development of "Public Alley Pathways": A Case Study of Zhijiang Road West Subdistrict in Shanghai

MA Qiang, WU Feiqiong, LIANG Jing, WEI Xiao

Abstract: Alley networks in the old parts of cities, often characterized by their narrow, dilapidated, and disconnected nature, are rarely integrated systematically into the urban road system. They present a significant challenge for urban renewal because of their complex ownership structures and boundaries. Using the urban renewal of Zhijiang Road West Subdistrict in Shanghai as a case study, this paper demonstrates that alley networks are not only vital components of the traffic microcirculation system but also pivotal to urban renewal efforts. This paper outlines three key strategies for alley network renewal. First, clarify the unique status and role of alleys within the road system, guided by human-oriented and localized approaches. Second, implement comprehensive renewal strategies aimed at developing a "public alley" system within the micro-environment of the old city. Third, innovate implementation mechanisms to achieve "win-win" outcomes under the coordination of the subdistrict offices and other grassroots governments. This involves using effective "YIMBY toolbox" to overcome common "NIMBY" obstacles and minimize "prisoner's dilemma" scenarios.

Keywords: urban renewal; alley system; public passways; local governance; NIMBY/YIMBY effects

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1 The Important Role of Alleys in Urban Renewal

Urban development in China has entered a new stage, shifting from extensive outward expansion toward refined, quality-oriented improvement. Urban renewal has become a central task and is increasingly moving toward micro-renewal, targeting the spatial "cells" of property parcels and individual buildings and closely involving place-based actors such as residents and property owners^[1]. It is no longer limited to filling gaps in supporting facilities or applying cosmetic "facelifts," but increasingly addresses deeper spatial-integration issues constrained by existing property rights. Based on the authors' participation in block-level urban renewal in Shanghai, the principal challenge in deepening initiatives such as the 15-minute community life circle lies in the alley network.

1.1 Improving Alley Networks Is Essential to Resolving Oversized Renewal Units

The spatial structure of old urban areas was largely produced through bottom-up processes of spatial self-organization^[2]. Long-term spontaneous development has left these areas with insufficient

public space and narrow, fragmented alley systems, resulting in poor accessibility and serious fire-evacuation and other safety hazards. Existing regulatory plans and urban-renewal programs have often selectively widened individual alleys at intervals of 300-400 m to meet municipal-road standards. This has created blocks bounded by urban roads but filled with irregular internal alleys, producing a pronounced mismatch between exterior and interior. Their spatial scale is considerably larger than that of old-city blocks in many international cities, where blocks in London, Milan, Barcelona, and Melbourne are generally around 200 m. Research indicates that such superblocks can cause mismatches in urban functions, reduce spatial vitality, and even limit opportunities to participate in urban renewal^[3]. Unless the alley network is addressed first, measures such as introducing new functions and reconstructing public space will remain superficial forms of renewal.

Zhijiang Road West Subdistrict in Jing'an District, Shanghai, is a typical example. Although its jurisdiction covers only 1.64 km², it is divided by the North-South Elevated Road, Zhongshan North Road, and other expressways, as well as Datong Road, Xizang North Road, Zhongxing Road, and other urban arterials. Except for Datong Road, these roads have red-line widths of 50 m or more. Block edges are generally longer than 300 m and in some cases exceed 400 m. The interior is in clear need of renewal: the alley network is incomplete, facilities are insufficient, and open spaces are difficult to insert. Surveyed residents expressed an urgent desire to improve facilities and travel conditions^①.

1.2 Improving Alley Networks Is an Important Supplement to the Municipal Road System

Scholars have noted that alley networks possess multiple transport, social, and ecological attributes^[4]. Their improvement is not only a matter of accessibility but, more importantly, of strengthening their public character. Traditional alleys are dense, human-scaled, and suited to walking, but they are also narrow, irregular, and frequently terminate in dead ends. They do not meet the minimum technical standards for municipal roads: the Standard for Urban Comprehensive Transport System Planning specifies a red-line width of 14-20 m for local roads and a minimum sidewalk width of 2.0 m. Alleys are therefore typical unclassified or non-standard roads.

Increasing road-network density has long been a priority in Chinese cities, but progress has been slow. The 2023 Monitoring Report on Road-Network Density and Operating Conditions in Major Chinese Cities shows that only Shenzhen (9.8 km/km²), Xiamen (8.7 km/km²), and Chengdu (8.6 km/km²) met the national requirement of 8 km/km² for built-up central urban areas under the Standard for Urban Comprehensive Transport System Planning (GB/T 51328-2018, hereafter the National Standard). Even Huangpu District in Shanghai, with the highest road-network density among Chinese urban districts at 14.4 km/km², remains well below central Tokyo (35.3 km/km²) and Manhattan (23.4 km/km²)^[5]. The emphasis on arterial-road construction has produced sparse networks and weak local-road systems, leaving little capacity for improving alleys and other unclassified roads^[5-7]. Converting alleys into standard local roads would require costly demolition and reconstruction; the resulting increase in motor traffic would also create safety risks, compress walking space, and damage urban scale, fabric, and spatial quality^[8].

Existing alley networks are not only the sole traffic-microcirculation systems inside many blocks but also important carriers of small-scale neighborhood public space and public life^[9-11]. In Zhijiang Road West Subdistrict, local roads account for only 37.5% of road length, far below the 65%-70% required by the National Standard. Yet the area contains more than seventy alleys no wider than 6 m. Their currently accessible length totals 10.9 km, with another 2.7 km potentially accessible. Together, these alleys yield a network density of 8.3 km/km² and an average spacing of about 100 m, far denser than the local-road system. Fitness trails, pedestrian pathways, street spaces, and other components of Shanghai's 15-minute community life circles ultimately depend on these alleys (Fig.1).

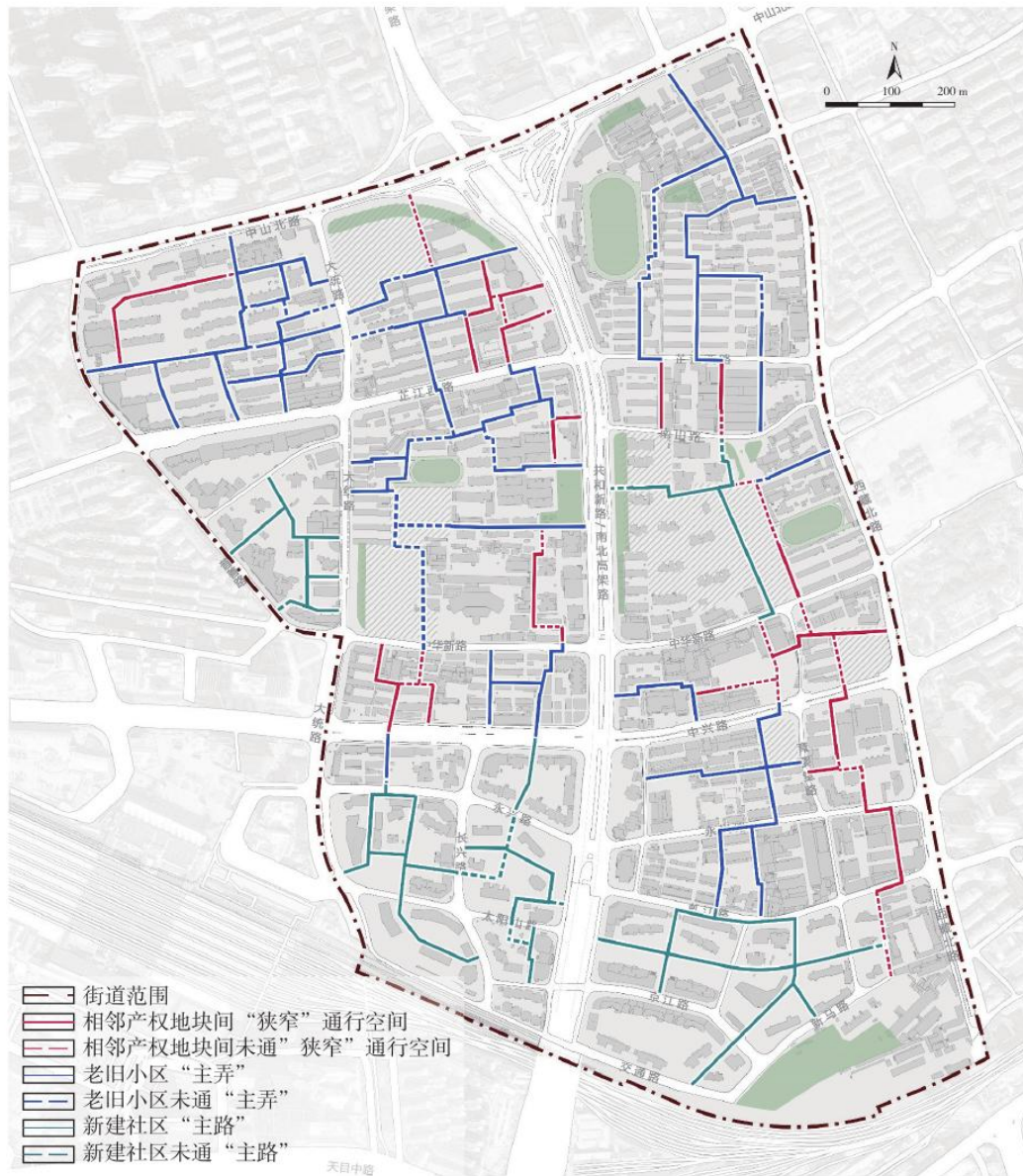


Fig.1 Current alleys of Zhijiang Road West Subdistrict

The concept of informal space has recently gained prominence in urban renewal. Such spaces can compensate for deficiencies in formal public space through their flexibility, diversity, and low cost. Alley networks composed of various unclassified roads are precisely the informal spaces of old cities, characterized by vitality and a human scale^[12-14]. Urban renewal should therefore move beyond conventional road-planning and construction approaches, give full attention to the improvement of alley networks, and adopt a context-sensitive approach distinct from car-oriented planning. By emphasizing the minimum right of passage and the characteristics of public alley pathways, cities should establish an alley-network category independent of the conventional local-road hierarchy.

2 Major Problems Facing Alley-Network Renewal

2.1 Lack of Clear Standards and Supporting Measures

The functional role of alley networks, technical standards for their improvement, and financial support have not received sufficient attention. The Standard for Urban Comprehensive Transport System Planning includes “roads within blocks that are not municipally owned but are open to the

public” as Class II local roads, without imposing rigid requirements for red-line width or design speed. Drawing on practice in Shenzhen, Yan Wenjun and colleagues proposed the concept of privately owned local roads, defined as non-municipal roads delineated through unit-level coordination, built by developers, and jointly managed by subdistrict offices and property-management organizations^[15]. Whether classifying alleys as a form of local road will lead them back toward car-oriented planning remains to be seen. More importantly, such classifications provide little effective guidance or support for real-world renewal issues such as property-right relations.

2.2 NIMBY Obstruction and the Prisoner’s Dilemma in Alley-Network Renewal

Academician Wu Zhiqiang has identified the difficulty of coordinating competing interests as one of the seven major challenges of urban renewal^[16]. Renewal fundamentally involves optimizing relationships between adjacent properties and spaces. Behind complex property relations are multiple stakeholders, among whom NIMBY^② behavior readily emerges. In seeking to protect their own interests, stakeholders instinctively worry that someone is “moving their cheese” and tend to choose noncooperation in public affairs. The result is damage to collective interests or failure to achieve common goals, producing a prisoner’s dilemma^③. NIMBY behavior makes it exceptionally difficult to adjust property boundaries: no actor is willing to bear the cost of a public good such as alley renewal, and communities are consequently left with insufficient public goods^[17].

Comparable NIMBY obstacles have repeatedly appeared in alley-renewal projects elsewhere in Shanghai (Tab.1). The situation in Zhijiang Road West Subdistrict confirms this pattern. The area contains many aging residential communities and a relatively high share of migrants, accounting for about 33% of permanent residents. This population has generally regarded alley renewal as irrelevant to its immediate interests. Local enterprises have also shown little enthusiasm, focusing instead on improved parking and additional outdoor sports space. From 2019 through the end of 2023, none of the ten “vitality trail connection projects” in the original community-renewal plan had been completed (Fig.2).

Tab.1 Similar examples of NIMBY effect in Shanghai

街巷名称		邻避后果	社区居民邻避主要原因	企业单位邻避主要原因
支路	浦东新区云台路	• 三林路与尚博路之间 200 m 的断头路十年未能打通,居民出行需绕行 1.8 km	• 目前工地用作临时停车场,如贯通车辆无处停放	• 与轨交规划方面的冲突 • 建设主体争议带来资金矛盾
	普陀区花家浜路	• 两区交界 269 m 的断头路,环境脏乱差,居民避让出行	• —	• 区环卫部门有构筑物超越道路红线 • 公交终点站需搬迁寻找新址
	杨浦区打虎山路	• 飞虹路—辽源西路路段隔断,居民出行不便,高峰时段周边路段拥堵严重	• 施工周期长,部分居民利益可能受损 • 部分小区停车棚须退界改造 • 部分地块旧改征收工作尚未完成	• 路侧的养老院、文体中心、保障租赁房等项目进程受道路建设施工影响
巷弄	长宁区爱建小区与虹桥小区的边门通道	• 小区相邻的边门成为出行“拦路虎”,居民为此“吵了 3 年”	• 居民担心打开边门影响自己小区的安全性和安静舒适度	• —
	浦东新区万科新里程小区西通道	• 业主出行需绕行 1.2 km,新开通道被封一年多	• 相邻小区此前有过多次矛盾,新通道爆发强烈不满	• —
	闵行区龙柏二村与嘉富丽苑共享公共通道	• 一方小区在通道上设置花箱、门禁阻碍另一方小区非机动车通行	• 设门禁的小区担心助动车太多影响安全	• —

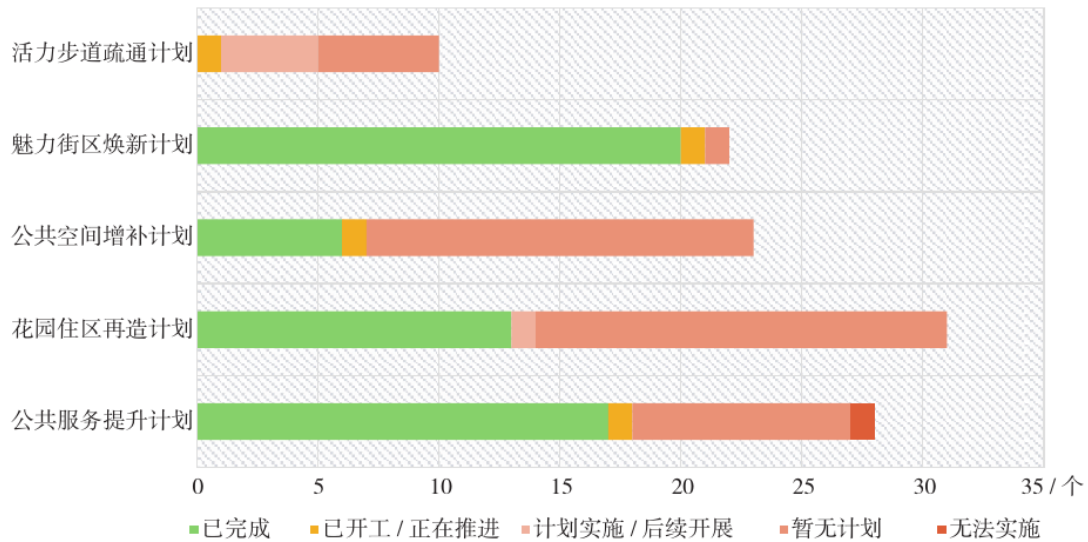


Fig.2 Implementation of "Zhijiang Road West Subdistrict 15-Minute Living Circle Community Renewal Plan" (2019-2023)

2.3 Implementation Mechanisms for Alley-Network Renewal Need to Be Rationalized

Beyond NIMBY behavior among stakeholders, a larger practical problem is the absence of a clear institutional backbone. The Shanghai Urban Renewal Regulations state that subdistrict offices and town governments should perform relevant urban-renewal duties, while the Shanghai Urban Renewal Guidelines require them to organize public participation, collect renewal proposals, and assist in project implementation. Under current conditions, however, subdistrict offices are asked to shoulder demanding tasks without the necessary tools or resources. Their responsibilities are heavy but not clearly or effectively divided. Urban renewal is highly professional and wide-ranging, yet subdistrict offices have limited staff, numerous day-to-day duties, and few specialists. Renewal work is also distributed across overlapping departments, including planning, transport, urban management, and landscaping, making coordination difficult. In addition, funding for urban renewal is scarce, and public finance is usually directed toward major projects, while small-scale improvements such as alley rehabilitation receive limited support. Many links in subdistrict-level implementation therefore remain to be clarified, and a new mechanism is required for the dynamic advancement of urban renewal.

3 Approaches to Improving Alley-Network Renewal

3.1 Fully Recognize the Status and Role of Alleys in Urban Renewal

The value of alleys in urban renewal should first be fully recognized, including their multiple roles in cultural continuity, spatial fabric, and traffic microcirculation. Urban-renewal regulations, implementation measures, and related standards should explicitly address alley-network renewal and encourage design procedures and guidelines that integrate transport planning with urban design and other perspectives.

3.2 Advance Alley-Network Renewal by Developing a Public Alley Pathway System

Alley-network renewal should build on existing spatial conditions rather than emphasize widening and straightening. Its primary objectives should be greater openness, shared passage rights, and connectivity, enabling alleys to support everyday life, public activities, and public functions within blocks and communities while minimizing reconstruction costs and maximizing circulation efficiency^[18].

(1) Small-scale, micro-renewal. Road-engineering standards should not be applied mechanically. Instead, alley micro-renewal should respond to actual needs and foreground people-oriented design.

(2) Flexible renewal. Large-scale demolition and reconstruction should be rejected. Existing lane spaces, building setbacks, and other stock resources should be fully utilized through mechanisms for sharing and mutual benefit.

(3) Negotiated, incremental renewal. Stakeholders should pursue co-development, sharing, and mutual benefit through negotiated and incremental processes.

To prevent alley renewal from falling into a car-oriented model, planning standards should establish alleys as an independent road category, thereby supporting a people-oriented urban microcirculation system. Drawing on existing practices in Shanghai, Shenzhen, Wuhan, and other cities, alley networks should be integrated with urban public alley pathway systems. Such integration can increase network density, control block scale, improve pedestrian accessibility, strengthen emergency access, accommodate community activities and leisure spaces, and increase flexibility in site layout^[19-21]. Shanghai defines a public alley pathway as a road without a planned road red line that mainly provides public passage for adjacent parcels, including main lanes and internal block roads. Because it is a non-municipal road, buildings along it need not observe conventional setback requirements^[22]. Wuhan defines it more specifically as a regionally shared passage that crosses a single parcel or runs between several parcels, does not alter land ownership, carries public traffic, and compensates for insufficient local-road density. The Shenzhen Urban Planning Standards and Guidelines (2021 Consolidated Revision) use the spacing between local roads and public alley pathways as a block-scale control indicator and require urban roads or public alley pathways within independently owned sites that exceed the maximum permitted block area.

Low technical thresholds, flexible control, and shared passage rights enable public alley pathways to balance public interests and private ownership. These are their fundamental advantages over urban roads, especially in renewal settings where ownership is complex, the cost of consolidating rights is excessive, and rigid road red lines are difficult to implement.

Technical width requirements for public alley pathways are much lower than those for local roads. Wuhan requires a minimum width of 6 m for public alley pathways that accommodate motor vehicles, compared with a minimum local-road width of 15 m. Shanghai requires only 4 m for purely pedestrian pathways and 7 m for pathways primarily serving walking while accommodating special vehicles for adjacent parcels, both well below the 9-24 m range for local roads. Public alley pathways are commonly controlled by dashed lines, allowing the number, entrances, width, and alignment of passages to be adjusted to local conditions and providing considerable flexibility (Fig.3).

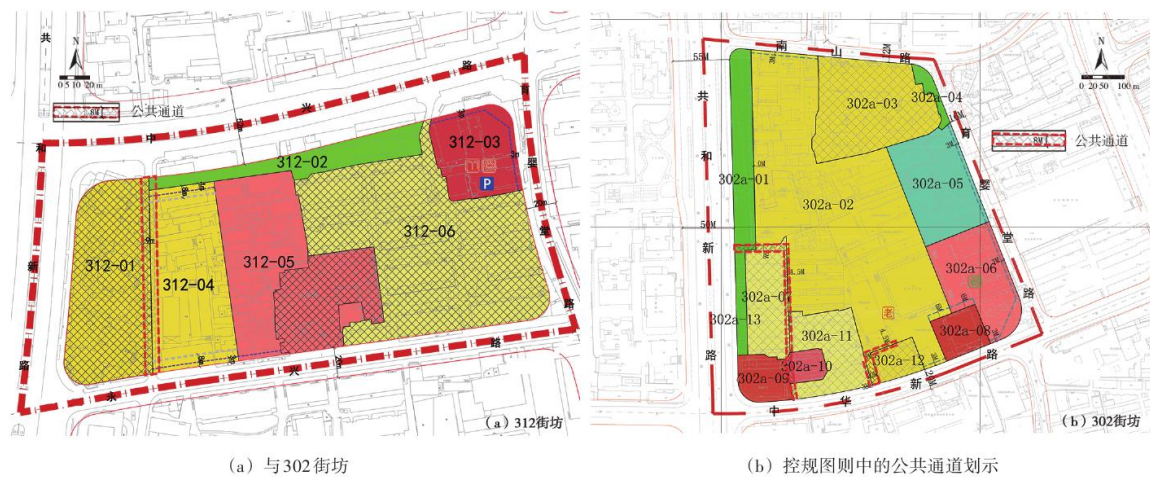


Fig.3 Public alleys of "312 Block"

Public alley pathways can reduce block dimensions to 200 m or less. The Shenzhen standards specify residential block spacing of 100-200 m in Class I and Class II urban landscape areas. Shanghai generally limits spacing between public alley pathways in residential areas to 200 m and to 150 m in public-activity centers and transport-hub areas. In the era of urban renewal, public alley pathways have become increasingly important. Shanghai treats them as a major component of land-transfer evaluation for residential, commercial-service, and office sites, allows them to be included directly in land-transfer conditions, and provides floor-area-ratio incentives under the Detailed Rules for Planning and Land Implementation in Shanghai Urban Renewal (Trial). Renewal projects such as Columbia Circle have provided surrounding residents with all-day public passages and open space, while receiving localized adjustments in building height and land use, thereby producing a win-win outcome in development returns and public benefits.

3.3 Overcome NIMBY Obstruction and Improve the YIMBY Renewal Toolbox

The Civil Code of the People's Republic of China provides a legal basis for the use of informal spaces between the public and private realms. Its provisions on rights of passage, layered establishment of construction-land-use rights, condominium ownership, and neighboring relations state that owners have rights and obligations concerning common parts beyond the exclusive portions of buildings, and that a real-property owner must provide necessary convenience when an adjacent rights holder must use the land for passage. These provisions support more detailed local urban-renewal rules for transferring and sharing adjacent-space rights to improve alley networks.

Optimizing implementation mechanisms is equally important. Alley networks are especially suited to a strategy of adaptive adjustment and renewal through borrowed-use rights. On the basis of full respect for existing spatial networks, urban fabric, property relations, and boundaries, multiple incentive mechanisms can encourage stakeholders to voluntarily lend the use rights of relevant spaces for improving public space and passageways. The objective is to preserve all viable alley space, add space wherever possible, and achieve shared use without public ownership through privately owned public alleys.

First, alley networks should be assessed for their suitability as public alley pathways. This requires identifying breaks, blockages, and bottlenecks and mapping three-dimensional property boundaries in adjacent parcels, including building setbacks, ground-floor building space, and usable courtyard areas. Second, planners should identify the incentives most likely to mobilize stakeholder participation and

design an effective YIMBY toolbox, drawing, for example, on New York's incentive zoning and floor-area-ratio bonuses for public facilities^[23]. Third, a long-term mechanism for incremental renewal should be established. Subdistrict offices, communities, and other grassroots organizations should coordinate a durable renewal coalition and maintain alley improvements over time. Technically, statutory planning diagrams should include indicators for public alley pathways and should use unit-planning tools. Government-adjustable incentives and policy levers—such as additional commercial frontage, floor-area-ratio compensation, tax concessions, and catalytic public projects—can enable enterprises to gain indirect benefits from increased foot traffic, upgraded business formats, and higher property values. Enterprises may then actively participate in alley renewal and open affiliated spaces to the public. The Ministry of Natural Resources has issued the Planning and Land Policy Guidelines for Supporting Urban Renewal (2023 Edition), introducing incentives such as composite land use and a gain tax^④. Shanghai, Guangzhou, Shenzhen, and other cities have also begun to specify the recognition and standards of floor-area-ratio incentives^[15,24-25], providing positive support for YIMBY-oriented alley renewal.

4 Alley-Renewal Practice in Zhijiang Road West Subdistrict

4.1 Improving the Mechanism: Partnership-Based Planning for Subdistrict-led Action and a Win-Win Renewal Coalition

Zhijiang Road West Subdistrict was among Shanghai's first fifteen pilot subdistricts for the 15-minute community life circle. Based on planning-implementation evaluation, the authors identified the alley network as the largest stock resource of public space and a key lever for community renewal. Yuyingtang Road, extending about 1 km through the eastern part of the subdistrict, was selected as the immediate focus of alley renewal. The planning team assisted the subdistrict office in formulating the overall concept of a "Yuyingtang Road Humanistic Youth Innovation Street" and established a working mechanism led by the subdistrict office, jointly developed by multiple actors, and technically coordinated by community planners. This enterprise-specific, partnership-based planning model uses community-life-circle projects controlled by the subdistrict office as incentive leverage for YIMBY-oriented renewal, encouraging enterprises to share their spatial resources and improving the scale and functions of Yuyingtang Road.

Peacock Creative Park provides another successful example. The park was converted from the former Shanghai Peacock Flavors Factory. Under the principle of shared renewal, the subdistrict office introduced two flagship projects—a one-stop service complex and an intangible-cultural-heritage exhibition hall—to support high-quality tenant recruitment. In return, the park opened internal spaces and building-setback areas, improved public alley pathways, and upgraded the sidewalk. The park obtained stronger leasing and operational conditions, the subdistrict office advanced alley renewal, and residents gained walking routes and service facilities, creating benefits for all three parties.

4.2 Improving the Network: Context-Sensitive Renewal of Alleys and Public Alley Pathways

Three common scenarios of renewal through borrowed-use rights can be identified.

(1) Scenario 1: Sharing privately owned idle space as a public alley pathway. Where a dead-end alley lies inside a closed parcel and cannot be connected, the owner may be encouraged through incentives to open underused internal space as a public alley pathway [Fig.4(a)].

(2) Scenario 2: Sharing the frontage of buildings adjacent to an alley as part of a public alley pathway. Where an alley is too narrow, tax concessions, business-entry permissions, and other YIMBY incentives can encourage adjacent owners to open ground-floor building space as part of the alley.

Integrated with the sidewalk, this can form a continuous and comfortable pedestrian environment [Fig.4(b)].

(3) Scenario 3: Opening and sharing dead-end passages as public alley pathways. Where potential passage space exists inside parcels but is blocked by walls or other barriers, YIMBY measures such as improved community facilities and environmental quality can encourage adjacent residential communities to jointly open gates or sections of walls. The result is a shared-use pathway without public ownership [Fig.4(c) and Fig.4(d)].

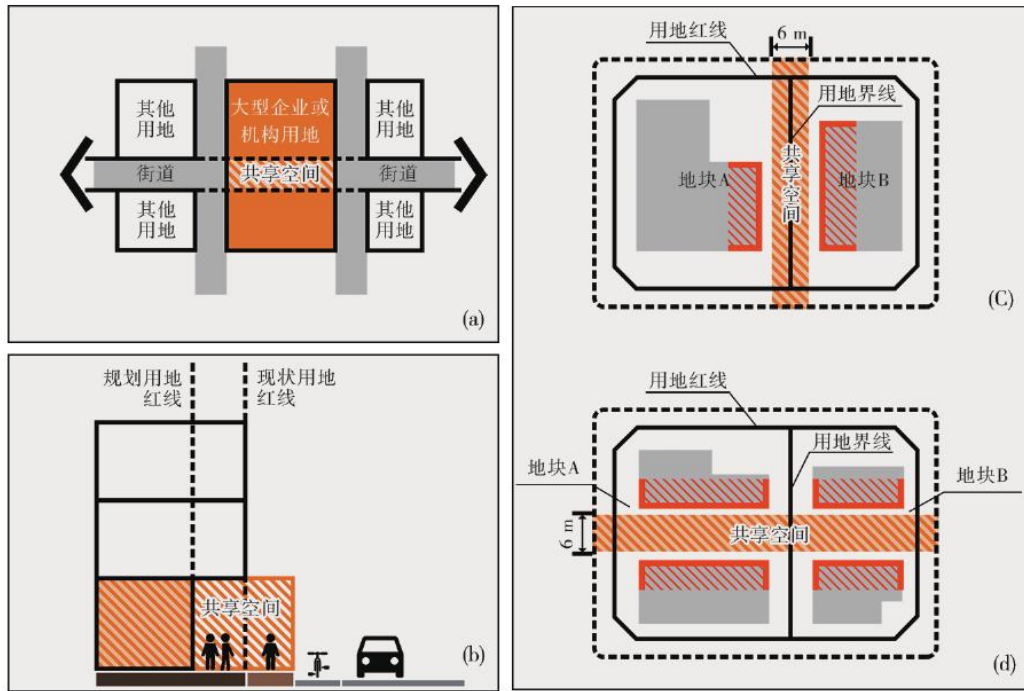


Fig.4 Three scenarios of alley renewal involving the borrowing of private spatial rights

4.3 Optimizing Scale: Public Alley Pathways Support Finer-Grained Renewal Units

After various alleys are integrated and upgraded into public alley pathways, the former 300-400 m “renewal islands” in Zhijiang Road West Subdistrict can be divided into smaller renewal units of 50-120 m (Fig.5). These units are appropriately scaled, convenient for daily life, amenable to fine-grained governance, active and open along alley frontages, and private and secure internally. They are better suited to becoming high-quality, people-oriented urban districts with a lively everyday atmosphere, creating improved spatial conditions for deeper urban renewal in the subdistrict.



Fig.5 Comparison of the block scale before(a) and after(b)

5 Conclusion

As urban renewal in China becomes increasingly fine-grained, the many alleys within built-up areas should be fully valued and activated as inherited spatial networks and precious stock resources of public space. Drawing on Shanghai's renewal practice, this paper proposes an alley-network renewal strategy of overcoming NIMBY resistance and achieving YIMBY-based mutual benefit. It emphasizes self-organizing approaches characterized by incremental decision-making, multi-party benefits, adaptive adjustment, and development through borrowed-use rights. These approaches can restore spatial value to large numbers of alleys that cannot be standardized or publicly acquired, enabling them not only to function as important microcirculation-level public alley pathways but also to play a broader role in urban renewal.

Notes

- ① In July 2023, Zhijiang Road West Subdistrict conducted a questionnaire survey as part of the community-life-circle blueprint plan. The survey obtained 469 valid questionnaires from general residents, 244 from older residents, and 57 from business-sector respondents.
- ② NIMBY is an abbreviation of "Not In My Back Yard." It refers to resistance by residents and other stakeholders who fear the negative impacts of a nearby project. O'Hare first proposed the concept in 1977, and it has been widely used in sociology since the 1980s. YIMBY, meaning "Yes In My Back Yard," is the opposite: people do not oppose, and may welcome, projects they believe will benefit community development. San Francisco launched a YIMBY movement in 2014 to encourage the construction of affordable housing within local communities.
- ③ The prisoner's dilemma is a game-theory model first proposed in 1950 by Merrill Flood and Melvin Dresher and later framed and named by Albert Tucker through the scenario of two prisoners.

When the parties cannot communicate or reach a binding agreement, defection is individually advantageous regardless of the other party's choice. Both parties therefore choose noncooperation, damaging their shared interests and preventing an optimal result.

- ④ A gain tax is, simply stated, a tax on gains: no tax is payable when no gain is generated.

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