Land Consolidation Perspective on the Study of Detailed Planning Models in Stock Areas – A Case Analysis of Urban Practices in Guangdong Province

Abstract:
Unlocking and utilizing the underutilized construction land in stock areas will become a norm in the development and utilization of national spatial resources. However, there is currently a disconnect between detailed planning formulation and land management, necessitating a further exploration of the legal and instrumental role of detailed planning in guiding land consolidation. The study suggests that in the face of the mixed spatial context involving state-owned, collective, incremental, and stock land, traditional restrictive detailed planning and control lack consideration for land consolidation, leading to implementation challenges. Guangdong has begun to explore a detailed planning and control model that emphasizes multi-party negotiation, focuses on spatial rights allocation, and aims at efficient and practical implementation. From the perspective of "value endowment and manifestation," the roles of planning and consolidation are clarified, establishing a hierarchical formulation model of "unit - land parcel." This model, centered on "rights foundation, value reconstruction, and efficient implementation," seamlessly integrates land consolidation strategies and pathways into detailed planning.
Keywords:
Land Consolidation; Detailed Planning; Planning Implementation; Equity Balance; Land Value

The reform of institutions and the establishment of a national territorial spatial planning system, as an important strategic deployment to advance the modernization of the national governance system and governance capabilities, pose higher requirements for the development, utilization, and systematic governance of territorial space. Currently, spatial development has entered a "new era of ecological civilization," with a focus on spatial governance and optimization adjustments. Detailed planning, as the legal basis for implementing urban and rural development construction, remediation, renewal, and protection and restoration activities, plays a decisive role in the allocation of land, especially construction land resources.

Land consolidation, as a comprehensive means to address historical legacy issues such as unclear land rights boundaries and scattered and mixed-use of land resources arising from rapid urbanization, is crucial for the effective implementation of detailed planning and efficient land use.

The effective allocation of land resources is contingent upon clear land property rights. Clear delineation of property rights is not only a prerequisite for market transactions but also

a prerequisite for the efficient allocation of land resource values through detailed planning. The establishment of a national territorial spatial planning system to achieve "integration of multiple plans" is not only about achieving "integration of multiple plans" at the overall level during the preparation phase but, more importantly, requires integration during the implementation phase, facing specific development and construction projects, to achieve the "management integration" of detailed planning and land use. However, the existing disconnect between land acquisition, reserve, supply, and the preparation and implementation management of detailed planning lacks consideration for land ownership, interest coordination, and other aspects, resulting in ineffective guidance for land consolidation and supply management. This mismatch between land supply and land demand leads to inefficient land use benefits.

Utilizing detailed planning as a tool to promote comprehensive and contiguous land consolidation, planning achieves the "endowment value" of land, and consolidation realizes the "revealed value" of land. This is not only a necessary requirement for advancing the modernization of the governance system and governance capabilities but also a necessary demand to meet the practical needs of efficient development and utilization of local land.

Existing research on land consolidation and detailed planning mainly focuses on discussions within their respective fields. Research on land consolidation revolves around issues such as the dilemmas of secondary land development, policy exploration, and planning practices. However, in terms of academic attention and research content breadth, research on land consolidation is far less than that on land reclamation and land improvement. Research on detailed planning is predominantly based on empirical cases, showcasing regional differences and innovative planning methods. It extends considerations for the fundamental attributes, transmission mechanisms, management models, and institutional environments of detailed planning. However, from the perspective of research content, it mostly revolves around "planning theory." In particular, since the establishment of the national territorial spatial planning system, research has mainly focused on the top-down planning transmission mechanism. In the context of the integration of planning and land management, how to achieve the "management integration" of detailed planning and land use, and the comprehensive consideration of both detailed planning and land consolidation, remains a blank research area.

After years of rapid urbanization and industrial development, especially in the Pearl River Delta region of Guangdong, a spatial foundation has emerged with a dual existence of state-owned and collective, as well as incremental and existing "dual binary" elements. Currently, the region faces prominent issues such as highly mixed urban, rural, and industrial areas, scattered and inefficient spatial utilization, inadequate supporting public service facilities, and difficulties in landing major industrial projects. There is an urgent need for systematic land consolidation to promote the secondary development and construction of existing areas. However, traditional detailed planning, guided by safeguarding public welfare, rigid control, and technical analysis, finds it challenging to address the problems brought about by the "dual binary" land, including fragmented and scattered land, complex property relationships, and conflicts of public interests.

In this context, cities like Shenzhen, Foshan, and Guangzhou have actively explored optimized approaches that combine detailed planning with land consolidation. This study, based on an analysis of the challenges faced in implementing detailed planning in "dual binary" areas, and drawing from the experiences of typical cities in Guangdong that have explored the combination of detailed planning and land consolidation, focuses on discussing how the integration of land consolidation and detailed planning can achieve the "endowment value" and "revealed value" of the territorial spatial value and interests.

1. Challenges in the Implementation of Detailed Planning in "Dual Binary" Areas

1.1 Lack of Institutional Safeguards and Policy Support, Difficulties in Addressing the Coordinated and Contiguous Development Issues Arising from the "Dual Binary" Land

Land development exhibits economies of scale, with larger development scales and contiguous land being more conducive to planning implementation and the implementation of public infrastructure, resulting in more apparent overall benefits [18]. However, during the rapid urbanization process in China, the dual land system in urban and rural areas has led to two different modes of land development and utilization, causing the phenomenon of "dual fragmentation" in both ownership and physical space [19]. This has also given rise to historical legacy issues such as unclear land property boundaries and scattered and mixed-use of land resources [2]. In the trend of "tight constraints" on the release of newly added construction land resources, planning management in highly urbanized regions, especially in Guangdong's Pearl River Delta, faces the challenge of efficiently allocating land resources on the mixed base of state-owned and collective, incremental and existing "dual binary" land. Traditional control-oriented detailed planning, established under the background of incremental expansion and construction control, often overlooks institutional barriers such as collective land entering the market and obstacles related to the contiguous transfer of increased and existing land. It also ignores the transaction costs in terms of time, manpower, and money involved in converting collective land into state-owned land and the redevelopment of existing land. Moreover, the current operational rules for the entry of collective-operated construction land into the market are not yet clear, and the unified urban and rural construction land market is still in the exploratory stage. Faced with the interweaving of state-owned and collective land, collective land still needs to be converted into state-owned land through requisition before obtaining complete land development rights [20]. There are significant differences in factors such as factor mobility, ownership and rights complexity, and the completeness of transfer and development between collective land and state-owned land. Under the current land management system, newly added operational construction land must be publicly auctioned through bidding, while existing operational construction land can use inefficient land redevelopment policies to legally implement comprehensive evaluations for transfer or transfer with design plans. The different supply paths lead to the adoption of different transfer subjects for increased and existing land within the same area or on the same plot, making it difficult to achieve "unified supply and coordinated development."

1.2 Lack of Consideration for Interests and Negotiation Mechanisms, Difficulties in Addressing the Complex Issue of Balancing Interests Resulting from the

Optimization of Existing Space

Planning management on the mixed-use land in the "dual binary" context involves a significant amount of readjustment of existing land ownership and the redistribution of land benefits [15]. Traditional detailed planning is primarily oriented towards safeguarding public welfare, rigid control, and technical rationality [22-24]. It often overlooks the demand for land ownership adjustments and spatial equity behind the implementation of planning. Specifically:

Spatial Layout: From a spatial layout perspective, detailed planning, considering the regularity of land parcels and scientific arrangement, often overlooks the integration of property rights behind the space. It breaks the original land ownership boundaries when delineating land use function boundaries. However, the "Urban and Rural Planning Law" only requires soliciting opinions from stakeholders and publicizing the draft before submitting it for approval, lacking the institutional basis for multi-party negotiation and consensus-building involving the government, land rights holders, and development entities, making it difficult to implement in practice.

Land Use: In terms of land use, commercial, residential, and industrial land for operational construction have significantly higher economic values than public service facility land. As the value of land resources becomes more apparent, and land rights holders become more aware of their rights, their judgment on land compensation shifts from "current land value" to "planned expected value." Balancing the interests brought about by different land use planning becomes an issue that must be considered in the planning process, involving the government, land rights holders, and development entities.

Floor Area Ratio Allocation: In the allocation of floor area ratio, traditional detailed planning primarily relies on local urban and rural planning management technical regulations to achieve "technically reasonable distribution," lacking the rationality of "fair balance of property rights." This results in an imbalance among different locations, uses, and timings under the same property conditions, making it challenging to implement detailed planning in areas with lower floor area allocation due to uneconomical cost-benefit ratios.

1.3 Insufficient Coordination in Spatial Value Allocation, Difficulties in Addressing the Frequent Modification of Planning for Redevelopment in Existing Areas

Land development involves multiple stakeholders, including the government, developers, landowners, tenants, and citizens, creating a complex game between maximizing private space value and public space value. Traditional detailed planning lacks differentiated considerations for the varied demands of government safeguarding public interests, orderly market development and operation, and ensuring reasonable returns for original land rights holders. It directly implements control indicators on land parcels, applying uniform and rigid controls without distinguishing between operational land and public service land. This makes it challenging for the government to dynamically balance and coordinate within a certain range during the planning implementation process. Additionally, land consolidation projects in existing areas mainly rely on government finances and market funds, with a limited scope confined to a project-by-project basis. Economic balance is often achieved simply by increasing the floor area ratio within the project, lacking a comprehensive consideration of

transportation, municipal infrastructure, and public service capacity. This compromises public interests. Therefore, in the process of spatial games and redevelopment implementation, it is often necessary to repeatedly initiate adjustments to detailed planning.

2 Analysis of Typical Cases in Guangdong Combining Detailed Planning with Land Consolidation

2.1 Shenzhen: Conduct in-depth land consolidation planning research aligned with detailed planning, promoting coordinated management of land consolidation benefits through project implementation plans.

During the rapid urbanization process in Shenzhen, the nominal implementation of "land requisition" and "land conversion" achieved the urbanization and state ownership of all urban land. However, due to inadequate compensation and incomplete procedures, a considerable amount of "semi-state-owned" and "semi-urbanized" land emerged, characterized by ambiguous ownership and complex interests [21]. This situation created challenges such as "the government cannot take it away, collective entities cannot use it effectively, and the market faces difficulties" [15], severely hindering the implementation of planning and the redevelopment of existing land.

In response, Shenzhen focused on public welfare projects and addressing historical legacy land issues related to major industrial projects. To address the adaptability issues in existing statutory regulations facing diverse ownership and varied ownership statuses in existing land, Shenzhen innovatively introduced a government-led model for coordinating land consolidation benefits [25]. This model involved constructing a planning coordination mechanism between "land consolidation planning" and "land consolidation project implementation plans" (Figure 1). At the detailed planning unit level, statutory regulations were still used for control, overseeing spatial layout, construction scale, and facility allocation to ensure the baseline of public interests.

For the area covered by land consolidation projects, in-depth research on land consolidation planning was conducted as a detailed planning model for implementation on existing land. The focus was on planning for the land retained after spatial integration, with land layout, development intensity, facility support, control elements, and control depth being generally consistent with statutory regulations. The overall control range beyond the retained land only involved planning control for public infrastructure that required adjustment and optimization [26]. The statutory regulations were covered within the land consolidation project scope as a basis for land development and transfer, using a "patching" approach. Simultaneously, to advance the resettlement compensation, housing demolition, land clearance, and resolution of historical legacy issues within the project scope, the land consolidation project implementation plan was concurrently developed with the land consolidation planning research. This supported the land consolidation planning research by clearly defining the land use pattern for government reserves and community retention. See Table 1.

Taking the land consolidation coordination project in the Xiawei Community, Longhua District, as an example: Xiawei Community is situated to the west of the Guanlan New Center District and to the south of the Huawei-Foxconn High-tech Industrial Zone. The community is traversed by the Wuhedadao, a key municipal project passing through the developed land in the community. However, encountering significant resistance following the path of statutory regulations for house requisition, the project faced difficulties progressing for five years. In 2015, the government incorporated land consolidation into the planning and implementation, effectively solving the problem of the project's difficulty in landing.

On one hand, spatially guided land consolidation planning research was conducted. Coordinating the land redlines of the Wuhedadao project and the community's development needs, the research incorporated the land requiring house requisition and the operational land in the community that could not be developed due to incomplete requisition (transfer) compensation procedures into the land consolidation project scope. Approximately 79% of the land in the land consolidation scope was coordinated into government reserve land for the construction of the Wuhedadao project and future development. Combining community development needs, the land consolidation planning delineated the boundaries of retained land, clarifying land use layout, development intensity, and facility support as the basis for the development and construction of retained land.

On the other hand, simultaneous implementation of the land consolidation project implementation plan, aimed at project execution, was conducted. The selection, layout, and index setting of retained land were the core of negotiation between the community and the government. To enhance the implementability of land consolidation planning research, an accounting of current land ownership, economic relationships, resettlement compensation, etc., was conducted. Based on this, the scale of retained land, government reserve land, building volume on retained land, and funding compensation plans were comprehensively arranged. The government and community's land interest patterns were fed back into the land consolidation planning research [27]. See Figure 2.

2.2 Foshan: Connecting with Plot Development Guidelines through Renewal Units as Carriers, Proposing Implementation Paths for Land Consolidation in Existing Areas

Foshan, as a typical region where rapid industrialization in villages and towns occurs bottom-up, and rapid urbanization expands top-down in parallel ("dual-track parallel"), has a land development intensity of 40%. Collective construction land accounts for over 40% of the total construction land area. There is a considerable amount of inefficient industrial space in villages and towns, and the phenomenon of mixed land use in urban, rural, and industrial areas is prominent. There is a significant mix of state-owned and collective land. The detailed planning and implementation face challenges due to the prominent "dual-track" land dilemma.

To address this, Foshan, based on the establishment of a hierarchical system for the compilation of "unit detailed planning – plot development guidelines," focused on safeguarding government-led spatial needs at the unit detailed planning level. It delineated key areas for near-term transformation, considering major industrial projects and

requirements for landing public facilities, and proposed land consolidation recommendations. At the plot development guideline level, for existing areas, it connected with urban renewal units and plot development guidelines. Clear requirements were put forward for the functional positioning, land use, intensity control, road traffic, public service infrastructure, and urban design guidelines within the unit. If adjustments to detailed planning were needed, the urban renewal unit's planning refinement covered the original detailed planning. For urban renewal unit plans not subject to mandatory control requirements in detailed planning, they were considered equivalent to plot development guidelines.

Furthermore, from the perspectives of different transformation entities, various land consolidation models such as hanging accounts for storage, mixed development, holistic village planning, and coordinated transformation were proposed. This included establishing paths for land consolidation involving construction and non-construction land, "three-old" transformation policy patches and non-patches, and the exchange of state-owned and collective land.

Taking the Aiche Xiaozhen Project in Guicheng Street, Nanhai District, as an example: The project is adjacent to the Fenjiang River, with excellent landscape conditions. Before the transformation, the project had already developed land primarily used for industrial and commercial purposes, with relatively low development intensity. Within the planning unit, there were state-owned land, collective land, and land with unclear ownership, including multiple ownerships on collective land, which were fragmented and irregularly interspersed, with unclear boundaries. Since 2013, various stakeholders, including the street and village collectives, have reached consensus on land integration, public facilities and road construction, and project cooperation models. Without land integration, it would be difficult to complete comprehensive transformation and development.

Firstly, through land demarcation and acquisition work, the ownership boundaries were clarified. The collective land voluntarily applied to convert to state-owned construction land, and the income was reserved. Through the equity transformation method, the individual collective lands were merged into a large parcel, and the equity ratio was determined based on the proportion of each original land area to the total area. Secondly, based on the principles of "equal area, voluntary consent, and certificate exchange," the land ownership was redefined through the exchange of state-owned and collective land, laying the foundation for contiguous development. Finally, based on the land integration plan, the urban renewal unit plan was prepared, adjusting and optimizing the land use pattern, setting plot control indicators to maximize the release of land potential and enhance land use efficiency. See Figure 3.

2.3 Guangzhou: Based on the demand for the redevelopment of old state-owned industrial land, it promotes adjustments to the regulatory detailed planning.

In Guangzhou, since the implementation of policies such as "retreat from two and enter three" in 2005, a large number of centrally-owned enterprises in the central urban area have relocated or ceased production, leading to prominent issues of idle or inefficient use of old factory land. The original detailed planning lacked consideration for area transformation, including industrial development positioning, economic feasibility, land consolidation modes,

etc., making it prone to the dilemma of "considering individual plots individually." To address this, Guangzhou established a hierarchical planning mechanism of "area planning—detailed planning adjustment" in areas with concentrated and contiguous updates.

Firstly, based on thorough research and communication, the scope of the updating area was defined, and area planning schemes were formulated. Within the overall planning scope, taking into account the spatial distribution and transformation demands of different entities, the reconstruction and rebuilding quantities were calculated separately. Reasonable layouts for resettlement and financing plots were determined, public facilities were coordinated, ensuring that the reconstruction scale did not exceed the spatial carrying capacity of the area. The transfer of floor area ratio (FAR) among centrally-owned enterprise plots was utilized to achieve the value allocation of land development rights, comprehensively achieving economic balance within the area. Based on this, suggestions for land layout and FAR allocation were proposed for plots involved in updating and transformation, serving as the justification for the necessity of detailed planning adjustments. This was to synergistically promote detailed planning adjustment work, forming detailed planning land use proposals and control indicators that meet the needs of land consolidation.

Simultaneously, the area planning scheme clarified the entities involved in land consolidation, the rules for coordinated interests, and the consolidation mode. Unified standards and rules were established, and different consolidation sub-zones were defined, guiding project implementation plans to further specify consolidation methods, implementation paths, compensation standards, land supply methods, land disposal, fund sources, and other specific operational pathways.

Taking the Baiege Tan Julong Bay area land consolidation project as an example, this project is the first pilot project led by centrally-owned enterprises for land consolidation. The consolidation scope includes a large number of old factory lands of centrally-owned enterprises such as Guangzhi, Guangqing, Guangyao, Guangzhou Port, Lingnan Group, and also involves some old village and old urban land. In the area planning scheme, starting with the land consolidation model and economic calculations, the development company of the centrally-owned enterprises was selected as the planning and implementing market entity. Apart from autonomous renovation for centrally-owned enterprise plots and old villages, other old factories and old urban areas adopted the land acquisition and integration method. Combining means such as land exchange and equity transfer, the project addressed historical land disputes and the fragmented and chaotic distribution of ownership, reconstructed property boundaries and existing resource spaces, conducted comprehensive economic calculations for old factories, old villages, and old towns, balanced land appreciation benefits distribution, optimized planning land layout and control indicators, and adjusted detailed planning schemes. This process enhanced spatial development benefits, coordinated planning with ownership boundaries, and reduced the difficulty of subsequent development implementation (see Figure 4). In the project implementation plan, based on the implementation of the adjusted detailed planning land layout and control indicators, various land supply modes were further clarified, rules for land exchange between centrally-owned

enterprise land and government reserve land were established, and mechanisms for equity transfer were detailed. Simultaneously, considering the needs of centrally-owned enterprises to cease production and relocate, as well as the requirements for reconstruction and resettlement of residents in old villages and old towns, the implementation sequence of land consolidation was specified, supporting phased development of plots.

2.4 Summary of Case Studies

The practices of detailed planning and land consolidation in Guangdong cities such as Shenzhen, Foshan, and Guangzhou have emerged in response to the inefficiencies in land resource allocation caused by the disconnect between traditional planning and land management during the implementation process. The typical cases in these three cities have developed integrated models of detailed planning and land consolidation in a layered and phased manner, tailored to the needs of project generation and advancement. Each city's exploration also exhibits unique characteristics.

Shenzhen focuses on the land retained by the original rural collective communities, emphasizing "planning guidance and detailed implementation." The primary approach involves the redistribution of land development rights for construction and non-construction purposes, as well as for lands with complete and incomplete procedures, to drive the consolidation of community-retained land and enhance its value.

Foshan concentrates on collective land, emphasizing "planning coordination and mixed redevelopment." The key strategy involves the reassignment of ownership rights for state-owned and collective lands, aiming to achieve contiguous consolidation and unified supply of land.

Guangzhou primarily deals with state-owned land from municipal enterprises, emphasizing "market negotiation and planning empowerment." The main approach includes the redistribution of development values, such as land plot ratios, to achieve a balance of interests among development entities. See Table 2 for details.

3 3Mechanisms for the Integration of Detailed Planning and Land Consolidation

Drawing on the experiences of the three regions, it is essential to fully leverage the dual functionality of detailed planning and land consolidation. On one hand, detailed planning plays a decisive role in configuring the land's ownership boundaries, functional purposes, development intensity, etc., through a "planar + three-dimensional" approach, guiding and controlling the direction and implementation path of land consolidation. On the other hand, land consolidation acts as a path for spatial integration and restructuring of the equity pattern, realizing the "manifest value" of the national land under the guidance and control of planning. Both aspects need to be integrated throughout the entire process of planning formulation and implementation management to promote the high-quality development and utilization of land.

3.1 Valuation: Detailed Planning Plays a Decisive Role in Value Allocation of Land Resources

Land, as a production factor, constitutes a comprehensive entity of space and the materials and rights attached to it on the Earth's surface [29]. The value of land is influenced by various factors such as location, land use nature, development intensity, and facility

support [30-31]. Detailed planning, as the legal basis for land development and planning permission issuance, plays a decisive role in enhancing the value of specific land parcels and rationalizing the distribution of rights. It provides a "valuation" of urban space through "planar + three-dimensional" approaches:

Adjusts and restructures the original land rights pattern by delineating boundaries for different land-use functions.

Assigns differentiated values to land development and utilization by specifying various planning purposes such as commercial, residential, industrial, and public services.

Provides differentiated values to lands of the same type through indicators such as plot ratios, green space ratios, and facility support. The "valuation" of detailed planning is realized through planning permission to determine the value allocation of land resources.

3.2 Manifest Value: Land Consolidation is the Implementation Path for Realizing the Value of Land Resources

Land consolidation essentially involves redefining and demarcating property boundaries for various types of inefficient, disordered, and mixed land in accordance with the requirements of planning implementation. The goal of consolidation focuses on using planning as guidance, integrating property rights to achieve efficient resource allocation. The target of consolidation emphasizes addressing historical legacy issues and the existence of mixed, scattered, inefficient, and idle land within development areas. The means of consolidation involve the comprehensive use of policies such as comprehensive land consolidation and the redevelopment of inefficient land, utilizing measures like land acquisition, reclamation, exchange, return, and renewal in accordance with the requirements of planning implementation. This aims to integrate and redefine fragmented and inefficient land and its property rights, coordinate and balance planning and control indicators within the unit, facilitate dynamic negotiations and consensus-building among the government and land rights holders, and ultimately reconstruct the land rights pattern. This compensates for the shortcomings in the implementation path of detailed planning, from "assigning value" to realizing the value of land resource utilization, thereby achieving the manifestation of the value of territorial space.

3.3 Interface: Coordinating "Rights," "Value," and "Implementation" to Promote the Integration of Detailed Planning and Land Consolidation

The integration of detailed planning and land consolidation requires a foundation in "rights," coordination with "value," and a focus on "implementation" (Figure 5). The specific integration needs to be addressed in the following three aspects:

Using the Rights Pattern as an Interface: Connect the current land use with land ownership. Analyze the current land use and ownership, gather basic information such as "people, buildings, land, property, and facilities." Quantify and solidify existing rights through stakeholder confirmation, government verification, and public disclosure, serving as the basis for detailed planning and land consolidation research.

Using Spatial Value Reconstruction as an Interface: Connect layout indicators with stakeholder demands. Translate urban development needs and stakeholder development demands into specific economic calculations. In the process of communication and coordination with various stakeholders, coordinate with spatial layout, land use functions, and control indicators to form a planning scheme that achieves consensus on spatial value

reconstruction.

Using Efficient Implementation Planning as an Interface: Connect implementation management with consolidation supply. After the detailed planning adjustment scheme is compiled and approved through legal procedures, it becomes the legal basis for land consolidation implementation. The land consolidation implementation plan, considering the economic balance between the government and market entities, specifies implementation subjects, timing, compensation standards, and funding sources, detailing the implementation path of the planning.

4 Land Consolidation Perspective on Detailed Planning Models

To address the contradiction between rigid management in detailed planning and uncertainties in land development, actively leveraging the statutory role of detailed planning, enhancing its specificity and implementability, and based on practices in typical cities, it is suggested to explore different unit types and different hierarchical-depth detailed planning compilation and control methods, as outlined in the "Notice on Strengthening the Work of Detailed Planning for National Spatial Planning" by the Ministry of Natural Resources. This proposes establishing a "Unit-Parcel" detailed planning hierarchical compilation model, endowing spatial rights for governments and cities. This involves clarifying the government's control of public-interest land and the orderly development boundaries set by the market for commercial land. It integrates the implementation path of land consolidation and coordinates government and market spatial rights to promote the realization of spatial value endowed by detailed planning.

4.1 Integration of Land Consolidation and Unit Detailed Planning: Oriented towards planning transmission and facility landing requirements for entire areas and continuous consolidation.

Dividing a reasonable scale of detailed planning units within the city's urban development boundary (Figure 6), focusing on baseline control, urban function optimization, spatial structure adjustment, and the needs of major projects and facility layouts. This is primarily oriented towards implementing government intentions and ensuring public interests, including.

On the basis of rights: At the unit level, it emphasizes government's overall control of spatial rights. The government takes the lead in clearly understanding the current land rights structure, identifying areas with potential for renovation and new spatial potential, anticipating the feasibility of land consolidation and spatial resource element input, outlining key areas for land consolidation, and specifying the scope of land to be requisitioned, with preliminary suggestions for land consolidation paths such as requisitioning, swapping, and renovation.

On the basis of value reconstruction: At the unit level, it emphasizes "doing the math" on the overall increase in regional value. Through a land consolidation estimate, by reasonably allocating control indicators such as land scope, land nature, and development capacity, it coordinates various interests, ensures economic feasibility, and achieves regional win-win.

On the basis of efficient implementation: At the unit level, it prominently highlights the government-led public-interest elements and control baseline requirements. This aligns with

urban renewal policies, requirements for the compilation of land acquisition and contiguous development plans, systematically guiding contiguous land consolidation, and ensuring the landing of public-interest elements. For public facilities such as public services, transportation, and municipal services at or above the city and county level, the boundaries are clearly delineated, serving as "restrictive" elements for control. For commercial land, its dominant functions and the proportion of various functions are clearly defined in block form, specifying spatial access conditions and serving as "open" elements for control.

4.2 Integration of Land Consolidation with Parcel Development Regulations: Focus on Equity Balance in the Project Implementation Process, Legalization of Land Consolidation Rules

Develop parcel development regulations as needed within the detailed planning unit (Figure 7), focusing on parcel boundaries, parcel nature, indicator control, and facility configuration requirements. This is primarily oriented towards specific project implementation and the delineation of development rights and responsibilities, including:

On the basis of rights: At the parcel level, it emphasizes precise allocation of land resources and rights. Based on policy requirements such as land acquisition, comprehensive land consolidation, and the activation of inefficient land, it fully aligns with the intentions of the original rights holders for transformation and the needs of potential transformation entities. It specifies the boundaries of the land for transformation, including new construction, demolition and reconstruction, minor renovations, land acquisition, reclamation, and land retention. After consolidation, it clearly outlines parcel ownership and land use nature. The content of land consolidation is legalized through additional maps for land consolidation.

On the basis of value reconstruction: It emphasizes the market-oriented allocation of factors, promoting better integration of an efficient market with an active government. Led by the government, compensation standards and land pricing rules are established, specifying rules for compensation standards, balance of income and expenses, contribution rewards, damage compensation, and equity sharing. It carries out surveys and boundary demarcations, rights registration, and surveys of development intentions by relevant land rights holders. Market forces determine factor prices, meticulously accounting for net land prices, pre-costs, demolition costs, compensation costs, resettlement costs, minor renovation costs, construction costs for supporting facilities, and land consolidation costs. Through comprehensive communication between the government and the market, after clarifying the input and output of all parties, the government scientifically assigns control indicators for planned parcels and reasonably utilizes policies such as rewards, compensation, and reductions to ensure a balanced interest among all parties.

On the basis of efficient implementation: The parcel development regulations guide the compilation of land consolidation implementation plans, specifying the handling of ownership replacement, land aggregation, and historical legacy issues during land consolidation. It defines compensation methods such as monetary and property, categorizes and specifies approval methods for various types of land use, and confirms the scope of land consolidation projects, the main bodies involved in land consolidation for various types of land, and

consolidation paths through agreements among multiple parties.

5 Conclusion

With the progress of reform, opening up, and rapid urbanization, the development and utilization of land space in Guangdong Province, especially in the Pearl River Delta region, has entered a stage of simultaneous growth and storage. The spatial foundation for planning, implementation, and management faces challenges such as the coexistence of increments and existing assets, and the mix of state-owned and collectively-owned "dual-binary" land. Difficulties in landing public facilities and balancing spatial value rights and interests exist.

Exploring a detailed planning model that integrates planning guidance and land consolidation management reflects not only the "re-empowerment" effect of the land property system behind high-quality land use but also the "space value addition" effect of negotiated planning and supporting policy mechanisms in the context of modernization of governance systems and capabilities. To fully reflect and unleash the market value of land resources, this article discusses strengthening the "value" and balance of land space value rights through hierarchical compilation based on "unit-parcel."

Looking ahead, there is still a need for further research on optimizing rules for land replacement paths, simplifying the land replacement process, shortening the land replacement cycle, optimizing the generation and conversion rules of interactive transformation indicators, and establishing a profit-sharing platform. Comprehensive efforts are required to advance the efficient and intensive use of land, focusing on formulating rules, guiding the market, and optimizing management.