

Research on Development Codes in Brisbane

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Abstract—Now, we are facing an important reforming period of national territory plan. If we still use the traditional development control means to solve the problem, we will not be able to face the rapidly developing world. Brisbane is the third largest city in Australia. The development codes of Brisbane originated from the development rules of the United Kingdom, but combined with the integrated development assessment system of Australia. It has formed an institutional system with performance development as the purpose, development codes as the means and multi-type permission as the result. In the form, all codes, laws, regulations and planning documents related to development are integrated into one folder. In the implementation of planning objectives, hierarchical management is adopted, and objectives are decomposed level by level to form detail control elements, so that planning objectives are closely combined with practice. In the management after approval, the "special channel" was adopted to improve the administrative efficiency. In this paper, we hope that through the analysis of its background, composition and control mechanism, we can get some enlightenment on the problems we are facing.

Index Terms—Planning permission, development, development code, Brisbane.

I. INTRODUCTION

In May 2019, the CPC Central Committee and the State Council issued a document of Several Proposals On The Establishment and Supervision of The Implementation of the National Territory Plan System (hereinafter referred to as the "proposals"), emphasizing the gradual establishment of a Multiple-plan planning preparation and approval system, which marks the establishment of the framework of the national territory plan system, and also indicates the transformation of the local examination and approval mode.

Compared with the original, first of all, under the new system, the object and scope of urban planning permit system management have been broadened, from "development control" to "development control and planning implementation". The competent department proposes to integrate the original multiple systems by adopting multiple plans, and implement public management of land use at all levels, so as to realize the comprehensive management and control of the city.

Secondly, the current planning permission system exposes the contradiction between discretion and strict rules. In the 1990s, China established the planning permission system of "one book and two certificates" based on regulatory planning. In 2008, the new Urban and Rural Planning Law of the People's Republic of China strengthened the legal status of

regulatory planning. Regulatory planning became a necessary condition for remising-land and plan in permission. Planning permission changed from "conforming to urban planning" to "implementing according to regulatory planning", and the mode of power changed from "due process" to "strict". In other words, changing from discretion to entity control [1]. Regulatory planning has become a special plan likes the zoning in the USA, and the discretion of development permission has been further deprived. According to the strict rules, the development chaos caused by random change of planning is effectively restrained, but it lacks flexibility and responsiveness. To solve the problem, the "proposals" put forward the mode of "regulatory planning and planning permission" for construction within the boundary of urban development, which is used to improve the current control system. However, how to classify and identify a large number of development activities, and how to refine and deepen the single permission means. How to enhance the governance ability and governance efficiency are still important research topics.

Brisbane is the capital city of Queensland, Australia, and the third largest city in Australia. The current planning of Brisbane is a planning folder formed by integrating various planning tools, covering planning, policies, regulations and various strategies. Different planning requirements are controlled through classification permission, which is consistent with the current national territory plan background. This paper attempts to analyze the operation mechanism and control logic of Brisbane development rules, and try to provide reference for the reform of China's planning permission system.

II. DEFINITION AND RELATED CONCEPTS OF DEVELOPMENT CODE

A. Definition

In a broad sense, development rules are the sum of all the norms, regulations and technical standards used to control development. In a narrow sense, development rules set rules for the development behavior to control the development. Different countries have different names, such as "development order" in the UK, "development rule" in the Singapore and "development code" in the Australia.

Generally speaking, the development rules need to obtain the development permission, and the final review is made by administrative. Zoning is a special development rule, which provides a right called "as-of-right" that does not need to be approved by any planning committee or council when the development meets its applicable requirements. As mentioned above, The zoning is legally effective due to legal procedures, and the law is fair to all development projects.

This is also the key to distinguishing development rules and zoning. Brisbane's development code originate from the UK, but incorporate Brisbane's integrated assessment system. The system enables development codes to be used for development assessment, forming a control tool with local characteristics.

B. Concepts

Development: According to the definition in Schedule 2 of the Planning Act 2016, development refers to "building works, operation works, plumbing or drainage work, reconfiguring a lot (i.e. a subdivision) or material change of use of premises" [2].

Category of development: The development types of Brisbane can be divided into "accepted development", "assessment development" and "prohibitive development". There are two kinds of accepted development, one is self-assessment development, which is also called exempt development, which is regarded as recognized and can be carried out, and the other is accepted development, subject to requirements, as long as the corresponding rules are met, the development can be carried out. Neither of which needs development application. Assessment development refers to the assessment according to the rules to obtain the development permission. Prohibited development is not allowed to apply for development.

Category of assessment: The assessment category is divided into code development and impact development. Regulation assessment is to assess the development application process according to the applicable rules in urban planning. These codes can include use code, overlay code, neighborhood code and some regulations. This type of application process can be assessed relatively quickly without public notice. Impact assessment refers to that some development projects may have potential impacts, which must be assessed in accordance with all the established laws and regulations and the whole urban planning in all relevant areas. In order to ensure that the development impacts are solved, the public notice must be made and the opinions of the community masses must be taken into account. Some cases only need regulation assessment, while others need both. (see in Fig. 1).

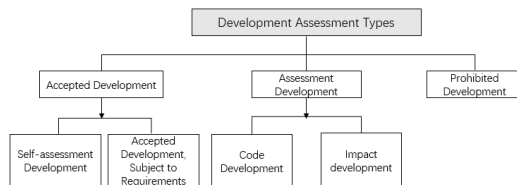


Fig. 1. Development assessment type relationship diagram.

III. CONNOTATION OF BRISBANE DEVELOPMENT CODE

A. Rights

According to section 10 of Part IV of the Planning Act 2016, the Planning Ministry must make rules for the development assessment process, which must include how to make public notice of the application and the documents submitted after deliberation; it can also stipulate some additional development assessment matters, and can also

authorize the council to formulate development codes through act. The Statutory Instruments Act 1992 establishes the subordinate legislative status of rules. Subordinate legislation is usually a statutory document formulated by an entity under the authority of law and approved by the Governor in Council. Subordinate legislation is usually set up for the purpose of saving council time, making legislation too technical and not suitable for deliberation, dealing with flexible events and uncertainties, and facilitating rapid implementation in emergency situations [3]. The power of Brisbane's development permission comes from council, and its legal rank is equivalent to the status of local administrative regulations in the legal system in China.

B. Scope

Brisbane's development permission includes direct permission and permission according to regulations. The former is the power granted by council to develop without application, while the latter is the same as the permission right of British development. Keith Thomas discussed the control scope of direct permission in Development Control: Principles and Practice, he believed that the development codes of direct permission are between the development codes that need additional permission and the treatment of laws and regulations. As shown in Fig. 2, the outer boundaries is the direct permission which development codes can handle independently, and the other ones can be solved by laws and regulations. Boundaries are problems that they have no right to deal with alone, and these problems must be solved through application for development permission; the codes between the internal and external boundaries are the scope of authority for the direct permission of development codes, and the control based on the authority does not need to obtain the other permission of the Planning Agency [4].

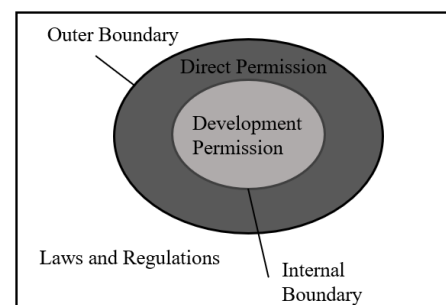


Fig. 2. The control scope of development codes [5].

C. Functions

In fact, Brisbane's development codes have multiple functions such as separation, screening, translation and decision-making (see in Fig. 3). First of all, development codes can separate planning from development to form a relatively independent system. Traditional planning and development is a combination of planning and development. From planning to development, a system is formed through all-round top-down control. Development codes separate the general planning work recognized by the public from specific planning projects and give them direct permission. Secondly, development codes have "screening function", and development codes provide screening criteria for the assessment of development types, The essence of Brisbane's

development control is to control the externality of development behavior. Externality is a concept in public economics, which refers to an activity that has a beneficial or negative influence on others, but does not need to be paid or compensated by others [6]. The development codes can correspond to the degree of externality influence produced by development behavior. In addition, the development codes have the translation function, which can form a detailed control standard by decomposing the planning objectives into smaller objectives. Finally, the development codes also provide decision-making function, which means that when there are conflicts among multiple rules for the same plot, the development codes provide the priority of these rules.

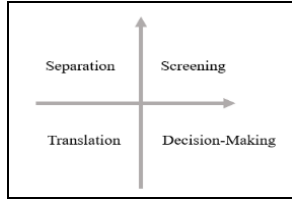


Fig. 3. Function.

IV. CONTENT AND FORM OF DEVELOPMENT CODES

A. Development Regulatory Tools

Brisbane City Planning 2014 is the statutory text of its development management. The control tools used for management include planning scheme policies, strategic frameworks, development codes, and some acts and regulations also have an effect on the development of Brisbane. Brisbane has a rich variety of development codes, including overlay code, neighborhood code, zoning code, use code, and other development code. Overlay code is equivalent to special plan in China, reflecting the interests and characteristics of the state and locality, such as the landslide superposition code formulated for landslide areas. Neighbourhood code provide more detailed regional management codes at the district level to implement the goals in neighbourhood planning. Zoning code help determine the location of land use and translate planning goals. Use codes and other development codes are mainly used to assessment development.

The development code, use code and other development code which cannot be assessed in Chapter 9 constitute the main assessment and development tool of Brisbane, which are used to assess the development of Brisbane and constitute conditions for the authorized development license. Other control tools may be used when they are involved. For example, neighborhood code need to be considered in areas covered by neighborhood planning, and overlay code should be considered in areas covered by overlay planning.

When the provisions of the planning scheme are inconsistent, the development code provide the priority of the decision. The strategic framework takes precedence over all other components, the relevant provisions set out in schedules 6 and 10 of the Planning Regulations 2017 take precedence over all others, the overlay code take precedence over codes other than the two aforementioned items, neighborhood code take precedence over zoning code, use

code and other development code, zoning code take precedence over use code and other development code, and priority development plans in part 10 provisions may override any of the above codes(see in Fig. 4)

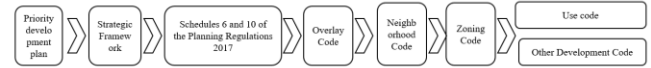


Fig. 4. Decision priority level.

B. Development Code That Cannot Be Assessed, Use Code and Other Development

There are three main types of development codes used in Brisbane for assessment.

Development Code That Cannot Be Assessed—refers to the development that cannot be assessed according to schedule 6 of the Planning Regulations 2017. It includes the accepted development of community residence, the accepted development and assessment development of timber production involving forestry planting requirements. For example, there is no need to apply for the construction of a parking lot for the disabled in Community living purposes.

Use Code—first determine the type of use your project is, and determine the uses of various buildings according to use definitions, such as hospitals, hotels, parks, residences, low impact industries, medium impact industries, etc. There are 27 codes for each use in Table I.

Other Development Code—it refers to the development rules involving construction engineering, operation engineering and large amount of reconfiguration in addition to the use codes. There are 11 other development codes in Table I [7].

TABLE I: TYPE OF DEVELOPMENT CODES

Use code (27)		
Animal keeping code	Home-based business code	Retirement and residential care facility code
Caretaker's accommodation code	Indoor sport and recreation code	Rural activities code
Centre or mixed use code	Industry code	Service station code
Childcare centre code	Intensive food production code	Short-term accommodation code
Community facilities code	Multiple dwelling code	Small-scale non-residential uses code
Dual occupancy code	Outdoor sport and recreation code	Special purpose code
Dwelling house code	Park code	Specialised centre code
Dwelling house (small lot) code	Park planning and design code	Telecommunications facility code
Extractive industry code	Rooming accommodation code	Tourist park and relocatable home park code
Other development codes (11)		
Demolition of rooming accommodation code	Operational work code	Subdivision code
Filling and excavation code	Outdoor lighting code	Transport, access, parking and servicing code
Infrastructure design code	Prescribed tidal work code	Wastewater code
Landscape work code	Stormwater code	

C. Development Procedure and Assessment Benchmark

Brisbane's assessment and development application procedure is "application-referral-information request-notice-decision and condition-appeal". In the referral stage, the applicant needs to be assessed through the Referral Agency, and the assessment agency judges whether it passes through the assessment benchmark.

The assessment benchmark of development codes consists of "purpose, overall results, performance outcomes and acceptable outcomes". First of all, the table will list "application", which refers to the purpose of the code. Secondly, "purpose" refers to the applicability of the code; through the overall results, it lists the overall criteria; the performance outcome is the ideal state, and the acceptable outcome is the compromise state.

TABLE II: ASSESSMENT BENCHMARK TEMPLATE OF CODE

9.3.3 Central or Mixed use code 1.3.3.1 Application 1. This code applies to assessing a material change of use or building work if: accepted development subject to compliance with identified requirements, where acceptable outcomes of this code are identified requirements in a table of assessment for a material change of use (section 5.5) building work (section 5.7), a neighbourhood plan (section 5.9), or an overlay (section 5.10) ; or Note: the development of a multi family component in a multi family or mixed use development will also be evaluated in accordance with the multi family rule and any required supporting codes. Note: enclosed parking areas more than 1 m above the ground are assessable. Note: where does this rule include performance results or acceptable results related to: <ul style="list-style-type: none"> • The air quality planning program policy • The policy of environmental design and planning 9.3.3.2 Purpose 1. The purpose of the central or mixed use rule is to evaluate the applicability of the rule. 2. The purpose of the rules will be achieved through the following overall outcomes: a. The development of new uses in existing buildings is suitable for their location and does not adversely affect the comfort of local or adjacent residents. b. Consider the accessibility, accessibility, accessibility, accessibility, and accessibility of the public space, as well as other public facilities, facilities, and services.	
Performance outcomes	Acceptable outcomes
Section A—If for accepted development subject to compliance with identified requirements (acceptable outcomes only) or assessable development	
PO2 Development protects the visual amenity of the centre, public realm and any adjacent residential use.	AO2 Development including mechanical plant, refuse and recycling area, vent and exhaust is not visible from: a. a street or public space; b. an adjacent residential use. Note—Mechanical plant includes generators, motors, compressors and pumps e.g. air-conditioning, refrigeration and coldroom motors.

Taking the Centre or Mixed use code as an example, it is applicable to the assessment of the substantial change of the use or construction project. Different control purposes need to refer to different planning scheme policies. The planning

scheme policy provides specific control standards. For example, the first article on noise control involves the Noise Impact Assessment Planning Scheme Policy. If the noise of the residential units is not acceptable, the results of the development should meet the requirements of the "three types of residential services" If you want to develop the club use, you must ensure that there is no noise generated. Except for the main central zone, the District central zone, Neighborhood central zone or Mixed use zone have stipulated the business hours from 6:00 a.m. to 10:00 p.m., and other areas from 6:00 a.m. to 8:00 p.m. in addition, it is necessary to ensure that the noise generated by mechanical equipment (air conditioning, refrigeration, etc.) will not affect the neighborhood It has an impact in Table II [7].

V. CONTROL MECHANISM OF DEVELOPMENT RULE

A. Transmission of Planning Policies

City Plan 2014 is a text formulated according to the Sustainable Planning Act 2009 to guide and control the development mode of Brisbane, with a control period of 20 years. City Plan 2014 needs to implement the development goals set out in the vision of Brisbane. Vision is equivalent to China's long-term planning and puts forward the development direction of the city. For example, Brisbane hopes to build a green, clean, friendly and safe city with convenient transportation, wisdom and health. The four framework themes are Brisbane's globally competitive economy, Brisbane's outstanding lifestyle, Brisbane's clean and green leading environmental performance and Brisbane's highly effective transport and infrastructure. Finally, use City shape realize the framework. How are they transmitted? Firstly, according to the zoning codes, the first level zoning dimension divides all the development into six categories according to the use, including residential zone, central zone, leisure zone, environmental zone, industrial zone and other zone. Secondly, each category is further subdivided to the characteristic elements according to use, including sundry classification standard such as residential density, development intensity, service of scope, environmental impact, use of facilities. The final content will respond to the theme of the strategic framework, pointing out the direction for the specific development through specific results and land use strategies, so as to realize the transmission of planning policies. (see Table III).

For example, in the Dwelling house (small lot) code, the theme of Outstanding lifestyle is broken down into nine development objectives, and then the target conduction is realized through the control elements of use, development scale and building height, so as to achieve development control. In the case of the "sunshine and privacy" clause, in order to minimize the impact on private open space, the performance result is to maintain direct sunlight and ensure that the size and volume of the building does not over exploit the adjacent residential buildings and their private open spaces. The acceptable results are described in more detail, and fine control is achieved through various precise indicators, such as the highest wall height 4.5m higher than the ground (see in Fig. 5).

TABLE III: Compartmentalization with Targets

Dimension partition	Major categories	Dimension partition	Secondary categories	Examples
Purpose	Residential zone	Residential density, number of floors	Low density residential zone, medium and low density residential zone, medium density residential zone, high density residential zone, characteristic residential zone and tourist accommodation zone	For example, low-density residential zones are used for low-density residential types, community uses, and small service facilities and infrastructure, usually 1 or 2-story housing. The strategic framework needs to be achieved: Theme 2: element 2.1 Brisbane's superior lifestyle, element 2.2 Brisbane's housing and accommodation options; Theme 5: City shaping and elements in Brisbane 5.5 suburban life in Brisbane.

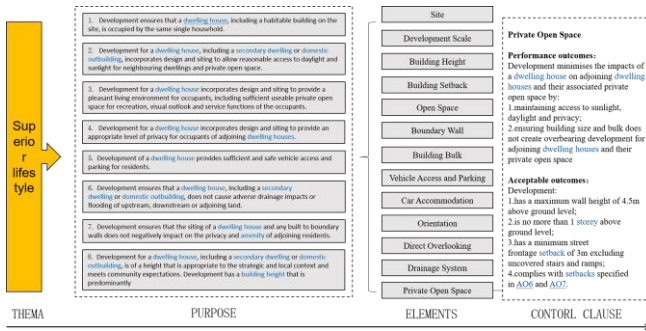


Fig. 5. Schematic diagram of planning target conduction.

B. A Control Gate between Development Control and Development Construction

Brisbane development is authorized development through the Code and Permission mode. It is equivalent to adding a control procedure in the development control link to separate the direct permission and the development that needs to apply for the license (see in Fig. 6). According to the experience, granting the Direct license right to a large number of daily and small-scale development projects that are recognized and can be carried out will be part of the work of the examination and approval personnel before simplification. At the application stage, the applicants can evaluate by themselves or find professionals. The rest of the projects that need to be evaluated and developed should apply to the Council, and the Council will decide whether to grant the development permission. This greatly improves the administrative efficiency compared with all previous developments requiring permission.

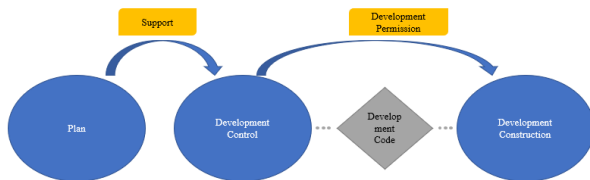


Fig. 6. The role of development codes.

C. Assessing Development Behavior

In the preparation of development application stage, development codes play the role of assessment standard. In Brisbane, if an applicant wants to realize a development, he /

she should first make clear whether the project needs to be developed and what application requirements are needed. In part 5 of City Plan 2014, the development codes are marked as Applicable code or Prescribed secondary code. Through the development codes, applicants can know what kind of development their project belongs to and what assessment requirements need to be met (see in Fig. 7).

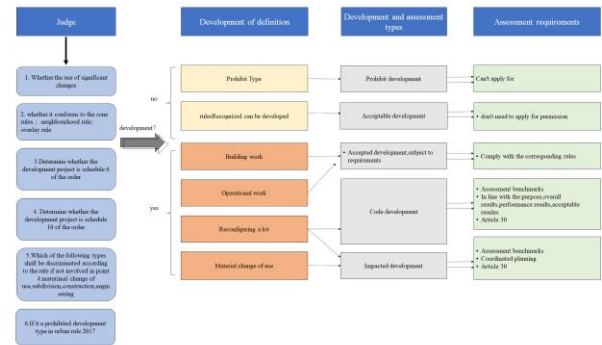


Fig. 7. Development evaluation decision procedure.

Generally speaking, building work and operational work belong to the acceptable development, and reconfiguring a lot belongs to the assessment development. The material change of use usually belong to impacted development or code development. Therefore, in order to help the applicant to determine whether the development can pass the evaluation, a table for preliminary judgment of development assessment is provided according to sections 5.5, 5.6, 5.7 and 5.8 of City Plan 2014, which helps to quickly determine the types of development assessment, such as the residential zone, the residential development is usually acceptable. If the park complies with the park code, it is an acceptable development, or it will be assessed according to the park codes in Table IV [7].

There are also some special cases to be noted, such as significant changes in the use of class I or class II buildings providing assistance services and temporary accommodation for people fleeing domestic violence, and prohibitions under the prohibited items listed in Schedule 10 of the Planning Regulations 2017 is not allowed. In addition, attention should be paid to some types of regulated development, including airports, brothels, removal of native vegetation, contaminated land, environmental activities, fisheries,

hazardous chemical facilities, heritage sites and infrastructure. (see Table V).

TABLE IV: DEVELOPMENT AND ASSESSMENT CATEGORIES - MATERIAL CHANGE IN USE

Low density residential zone		
Use	Categories of development and assessment	Assessment benchmarks
Dwelling house	Accepted development	
	If identified in schedule 6, part 2 of the Regulation	Not applicable
	Note—Where an overlay applies, a Dwelling house may become assessable development. Refer to section 5.10.	
Park	Accepted development, subject to compliance with identified requirements	
	If complying with all acceptable outcomes in the Park code	Not applicable
	Assessable development—Code assessment	
	If not complying with all acceptable outcomes in the Park code	Park code

TABLE V: DEVELOPMENT ASSESSMENT TYPE INVOLVES REFERENCE

Assessment Type	Reference
Acceptable Development	For exempt development, please refer to Section 5.5, 5.6, 5.7 and 5.8 of City Plan 2014
	Accepted development, subject to requirement, please refer to Part 9 of City Plan 2014
Assessment Development	Code development, please refer to Part 9 Section 5.9.5.10 of City Plan 2014
	Impacted development, please refer to Part 9 Section 5.9.5.10 of City Plan 2014
Prohibit Development	Planning Regulations 2017 Schedule 10
Special Case	Planning Regulations 2017 Schedule 10

D. Change Mode of Development Permission

There are two methods for the received development approval to change the conditions in the license—Minor change and Other change. Minor changes can be divided into two situations: one does not need to be applied for, and the other needs to be applied for. Minor changes that do not need to be applied for meet the conditions that if it is not a significantly different development, does not include prohibited development, does not involve the introduction of new impact assessment, does not introduce a new evaluation basis for the assessment agency, does not introduce a new or additional assessment agency. If the application for minor change is required, If minor changes are needed, it will ensure that no new uses will be created, new land will not significantly change the structure, will not change the development intent, will not affect traffic, will not bring new impact or increase the known or the severity of the impact, offsetting components, will not affect infrastructure regulations. Other changes involve material changes will be assessed in accordance with section 82 of the Planning Act 2016 and the development codes, and require public notice, and apply for development permission through the Change application assessment process.

VI. CONCLUSION

First of all, Brisbane's development codes are the collection of a series of rules used to assess the development. They are part of the statutory text of City Plan 2014. This is different from the development rules of other countries. For example, under the background of centralized control, the

development codes of Brisbane are both national oriented and local oriented rules are issued, but each code is independent. Brisbane integrates a variety of development codes into a text, sets the priority level when the codes conflict, and defines the authority of each code.

Secondly, Brisbane's development codes show the characteristics of hierarchical management. From the macro long-term planning vision to the implementation of neighborhood planning objectives, the vision and objectives are decomposed into multiple small objectives, forming a control principle and standard, achieving the degree of precise control, which is an effective institutional design for translating objectives into development.

Thirdly, the development codes of Brisbane are to control the externality of development behavior. The development behavior defined by Brisbane involves a wide range, including new building, expansion, reconstruction, excavation and earthwork, land reconfiguring, use material change and so on. If the negative externalities are negligible, permits will be granted directly, such as replacing exterior wall paint, which will produce very small negative externalities. The development behavior needs to be reduced to a certain extent in order to allow development, which is the significance of development codes. For example, to control the noise of the block, in addition to the conventional noise standards or regulations prohibiting the production of noise, it is also flexibly controlled by combining with the business hours.

Finally, Brisbane adopted different application procedures for approved changes and new permits, which improved the administrative efficiency. The approved development license changes can be divided into three types. The permitted changes that do not affect or are not obviously different are allowed to be directly licensed or applied for permission. If they have an impact, they can be assessed through the Change assessment application process. Compared with the general development license application process, this process can be assessed faster and is a special channel.

At present, China is implementing a rigid development control system dominated by regulatory planning. There are two ways to implement the goal of the master plan. One is land use zoning based on functional types. However, the control of land use by urban planning also covers various planning policies such as promoting economic development, maintaining social security, protecting the historical environment, and shaping spatial patterns. Land use generates different demands [8]. The other is to conduct comprehensive control with rigid indicators, such as building height, floor area ratio, green space ratio, building area, building density and main use. The simple function division and rigid index control are effective for the early economic benefit oriented planning implementation. However, with the rapid development of the city, the pursuit of quality environment, the original planning means are not enough. With the longer the management effectiveness, the problems exposed become more and more obvious. It is necessary to introduce flexible means to reconcile. Brisbane's development codes combined with the permission make a good demonstration for this problem. Development codes manage development from multiple perspectives, and the

adjustment process is easier.

In recent years, our plan adjustment has become more frequent. Taking Guangzhou as an example, according to the statistics of Guangzhou Planning Commission's 10-year agenda, the detailed plan adjustment proposal has reached more than 60%. However, our adjustment procedure is very troublesome. First, planning revision is consistent with the formulation procedure according to Article 48 of the Urban and Rural Planning Law. There is no special procedural specification for planning adjustment. Local governments are required to formulate their own regulations. Brisbane provides a new idea, that is, to set up a special adjustment approval channel and enter into different adjustment procedures through assessment.

CONFLICT OF INTEREST

We declare that we have no financial and personal relationships with other people or organizations that can inappropriately influence our work, there is no professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in, or the review of, the manuscript entitled.

AUTHOR CONTRIBUTIONS

Dongmei Zeng contributed to the conception of the study and writing of the main content

Dongjin Qi helped perform the analysis with constructive discussions.

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